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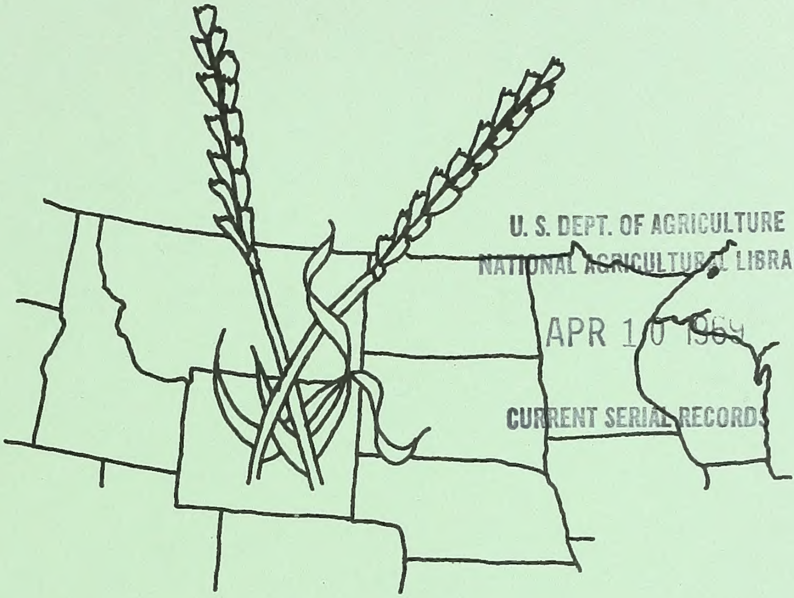
HARD RED SPRING WHEAT



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QUALITY REPORT

Physical, Chemical, Milling, and Baking Characteristics

1968 CROP

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
CROPS RESEARCH DIVISION

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
CROPS RESEARCH DIVISION
in cooperation with
State Agricultural Experiment Stations

REPORT OF PHYSICAL, CHEMICAL, MILLING, AND BAKING EXPERIMENTS WITH HARD RED SPRING WHEAT

1968 CROP[1]

by

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[1] This is a progress report of cooperative investigations containing some results that have not been sufficiently confirmed to justify general release; interpretations may be modified with additional experimentation. Confirmed results will be published through established channels. The report is primarily a tool for use of cooperators and their official staffs and to those persons having direct and special interest in the development of agricultural research programs.

This report was compiled in the Crops Research Division, Agricultural Research Service, U.S. Department of Agriculture. Special acknowledgment is made to the North Dakota State University for their facilities and services provided in support of these studies. The report is not intended for publication and should not be referred to in literature citations nor quoted in publicity or advertising. Use of the data may be granted for certain purposes upon written request to the agency or agencies involved.

Hard Red Spring and Durum Wheat Quality Laboratory
Fargo, North Dakota
CR-13-69
February, 1969

COOPERATING AGENCIES, STATIONS, AND PERSONNEL

The cooperating agencies and stations conducting the varietal plot and nursery experiments from which the 1968 spring wheat samples were received are listed below:

California Agricultural Experiment Station:

Five Points, Meridian, and Walnut Grove.

Colorado Agricultural Experiment Station:

Fort Collins and Grand Junction.

Idaho Agricultural Experiment Station:

Bonners Ferry.

Minnesota Agricultural Experiment Station:

Crookston, Morris, St. Paul, and Waseca.

Montana Agricultural Experiment Station:

Bozeman, Dutton, Havre, and Sidney.

North Dakota Agricultural Experiment Station:

Carrington, Dickinson, Fargo, Langdon,
Minot, and Williston.

South Dakota Agricultural Experiment Station:

Highmore and Watertown.

Washington Agricultural Experiment Station:

Lind.

A complete list of all cooperating agencies, stations, and personnel for the year will be found in the report by Dr. K. L. Lebsock, "Results on Spring Wheat Varieties Grown in Cooperative Plot and Nursery Experiments in the Spring Wheat Region in 1968."

INTRODUCTION

Samples of standard varieties and many of the new strains of hard red spring wheat grown in cooperative experiments in the spring wheat region of the United States[2] have been milled each year by the USDA. The flours were assayed chemically and physically and baked into bread to determine the quality characteristics. The purpose of this report is to make available to the cooperators, quality data on the standard varieties and new strains of hard red spring wheat from the 1968 crop.

The same general format and techniques were used in evaluating the wheats as outlined in quality reports for previous years. The data contained in this report are comparable to data in past reports and, where applicable, average results and also the average results of the 1967 crop are compared.

The format adopted in 1962 shows an evaluation of the samples in three categories: kernel characteristics, milling performance, and baking evaluation. For the sake of brevity, only the apparent deficiencies or outstanding characteristics for the varieties are given. The column, General Evaluation, on the tables indicating the Uniform Regional Nursery Averages and Sawfly Yield Nursery Averages, gives the overall performance of the variety for the samples submitted. It is hoped that with the use of this format one can quickly ascertain the various characteristics of the sample and any outstanding features or deficiencies which are apparent. Again, for physical characteristics, the mixogram data are given with no specific comments made regarding the patterns, since reference mixograms for each of the general types are presented at the end of the report.

Generally, the crop was grown under unusual conditions in that there was ample moisture at planting time but little rainfall during the growing season. However, just prior to harvest as well as during harvest, considerable rain fell causing a delay of from one to four weeks. Although this resulted in little sprout damage to the wheat, many of the samples were bleached with resultant affect of somewhat soft milling characteristics. The average extraction was lower than the 1967 crop but the flour mineral content the same at 65% extraction even though the wheat mineral content was lower. The baking performance was slightly better than the 1967 crop showing higher absorption, stronger doughs, and better grain. The better performance was a reflection, in part, of the 1% higher protein content.

The oxidation requirements for the 1968 crop were about equal to the 1967 crop, requiring approximately 10 p.p.m. bromate. Some samples even showed the need for more oxidation.

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[2] Lebsock, K. L., "Results on Spring Wheat Varieties Grown in Cooperative Plot and Nursery Experiments in the Spring Wheat Region in 1968." Crops Research Division, Agricultural Research Service, USDA.

SOURCE OF THE SAMPLES

Tests were performed on 527 samples received from field plots, uniform regional nurseries, and sawfly yield nurseries of the 1968 crop. These samples originated in eight states: California, Colorado, Idaho, Minnesota, Montana, North Dakota, South Dakota, and Washington. Twenty-three stations from these states were represented, namely, Five Points, Meridian, and Walnut Grove in California; Fort Collins and Grand Junction in Colorado; Bonners Ferry in Idaho; Crookston, Morris, St. Paul, and Waseca in Minnesota; Bozeman, Dutton, Havre, and Sidney in Montana; Carrington, Dickinson, Fargo, Langdon, Minot, and Williston in North Dakota; Highmore and Watertown in South Dakota; and Lind in Washington.

Due to apparent differences in the characteristics of the wheats and protein contents, no samples were blended this year except the Colorado samples which were blended before receipt.

On page 5 are listed the spring wheats which were included in the 1968 Uniform Regional Nursery trials. The variety or cross, the station which developed the variety, the state selection number, and the C.I. number are given. The North Dakota selection ND 363-1 (C.I. 13958) was named Waldron and released by the North Dakota Experiment Station on January 2, 1969.

In Table 24 are given the average data for the Uniform Regional Nursery samples. The data for kernel characteristics, milling performance, and mixograms are arithmetical averages of the individual samples. However, the baking data were obtained from blends of equal proportions of the individual flours for each sample from the 16 stations.

In Table 30 are given the average data for the Sawfly Yield Nursery samples obtained from the arithmetical averages of the individual samples.

ENTRIES FOR THE 1968 UNIFORM REGIONAL HARD RED SPRING WHEAT NURSERY

Entry No.	Cross or Variety	Sel. No.	C.I. No.	New or Old	Source
1	Marquis		3461	Old	Canada
2	Thatcher		10003	"	Minnesota
3	Justin		13462	"	N. Dak.
4	Chris		13751	"	Minnesota
5	Manitou		13775	"	Canada
6	Waldron*		13958	"	N. Dak.
7	M5824^2 x II-50-72	II-55-11	13773	"	Minnesota
8	$\left[\right.$Penjamo 62 x(Hry^7 x P54)x(K184 x Wis250)$\left.^7\right]$ x(K184 x Wis250^4)	Wis 271**	-	"	Wisconsin
9	RL4125 x RL4008***	RL4200	-	"	Canada
10	Pb^2 x Magnif Entrerriana	RL4220	-	New	"
11	Lake x Selkirk Sib	K48-44	-	"	"
12	Justin Sel.	M4-1	-	"	N. Dak.
13	Justin Sel.	M4-7	-	"	"
14	(Justin^2 x ND259-Cly) x ND406	ND476**	-	"	"
15	Justin x ND259-Conley	ND481**	-	"	"
16	Justin^2 x Cly-ND122	ND482	-	"	"
17	59-148 x 57-60	S659	-	"	"
18	Fortuna x[(II-50-17 x 51-2688)xND4-Rsc]	S6579	-	"	"
19	II-50-17 x Pilot 2X B52-91	MT6610	-	"	Montana
20	B52-91 x B60-40	MT6661	-	"	"
21	II-55-10 x(Pb-II-52-329 x(II-53-38-III-58-4 x II-53-546	II-62-2**	-	"	Minnesota
22	"	II-62-61**	-	"	"
23	"	II-62-68**	-	"	"
24	Red River 68	- **	-	"	World Seeds

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* Formerly Selection No. ND 363-1. Released in January, 1969.

** Semidwarf types.

** RL4125 is Tc^7-Ftn x Tc^6-KF; RL4008 is Tc^2 x Ftn-Tc.

METHODS

The terminology and methods used are briefly described below:

Test Weight Per Bushel - The weight per Winchester bushel of cleaned, dry, scoured wheat. To determine the dockage-free test weight on a comparable sample, approximately one pound per bushel should be subtracted from the value given.

1000 Kernel Weight - The 1000 kernel weight was determined by counting the number of kernels in a 10 gram sample of cleaned, picked wheat with an ASCO Seed Counter[4/].

Kernel Size - The percentages of the size of the kernels (large, medium, and small) were determined on a wheat sizer as described by Shuey[5/].

The sieves of the sizer were clothed as follows:

Top Sieve - Tyler # 7 with 2.92 mm. opening
Middle Sieve - Tyler # 9 with 2.24 mm. opening
Bottom Sieve - Tyler #12 with 1.65 mm. opening

Potential Yield - The potential yield was determined by multiplying the percentages of the overs of each sieve #7, #9, and #12, by the value of 78%, 73%, and 68%, respectively. The accumulation percentage is given as the potential yield.

Milling - The samples were cleaned by passing the wheat over an Emerson Kicker and Dockage Tester and through a modified Forster Scourer Model 6. The clean dry samples were pre-tempered to 12% moisture for at least 72 hours; then tempered to 16% moisture and allowed to stand overnight prior to milling.

All samples except the advanced yield nursery and field plot samples were milled on a Brabender Quadrumat Junior Mill. The mill was equipped with a #18 wire on the drum sieve. The throughs of the #18 wire were rebolted on a Strand Sifter equipped with a #60 Tyler sieve. The sample was sifted for 1 minute. The throughs of the #60 wire were classified as flour and this was the material tested. The overs of the #18 wire were classified as bran and the throughs of the #18 wire and overs of the #60 Tyler sieve as crude shorts.

The field plot and advanced yield nursery samples were milled on a Buhler Continuous Experimental Mill. This mill has been slightly modified

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[4/] Mention of a trademark name or a proprietary product does not constitute a guarantee or warranty of the product by the USDA, and does not imply its approval to the exclusion of other products that may also be suitable.

[5/] Shuey, William C. A Wheat Sizing Technique for Predicting Flour Milling Yield. Cereal Science Today 5: 71-72,75 (1960).

to give results more comparable to commercial milling. The break scalping sieves were clothed with #54 stainless steel wire, the reduction scalping sieves with #58, #66, and #105 stainless steel wires for the first, second, and third reduction, respectively. All of the flour sieves were clothed with #135 stainless steel wire.

All six flour streams were combined to give the patent flour. The extraction of a good milling wheat using this flow is approximately 68%. This is comparable to a commercial "long patent" extraction flour. At this flour extraction of the wheat, the changes in flour ash are most sensitive to changes in percent extraction.

Protein Content - The protein was calculated by multiplying the factor of 5.7 times the percent nitrogen as determined by the standard Kjeldahl procedure.

Mineral Content or Ash Content - This was determined by measuring the residue of the minerals left after incinerating the sample for approximately 16 hours at 565° C. The results were reported as percentage of the sample which was incinerated.

Mixogram - The mixogram was determined by using 30 g. of flour and adding 20 cc. of water. The sensitivity spring setting was set at 10. All mixograms were run with constant weight of flour and volume of water. Absorptions reported were adjusted according to the height of the mixogram. The correction factor was determined from a series of flours by varying the amount of absorption.

Mixogram Pattern - The reference mixogram patterns given at the end of the report demonstrate the different types of mixograms which were obtained. A single number is assigned each pattern to characterize and simplify the classification of the curves - the larger number indicating stronger curve characteristics.

Baking Procedure or Formula - The baking formula used was as follows:

100% flour	3% milk D.S.M.
2% salt	3% yeast
5% sugar	2% shortening (Crisco, melted)

The sample was mixed to development in a National Manufacturing mixer, for the 25 g. sample the Micro mixer, for the 100 g. sample the 100 g. special mixer size. Also, 10 p.p.m. of bromate and 0.1% Barley Malt Flour was used for oxidation and enzymatic supplements, respectively.

Absorption - This was the water, expressed as percent of the flour, required to bring the dough to proper consistency.

Crumb Color - This value was determined by comparing the loaf of the tested sample against a baking standard. This standard was selected as an average for the crop year for the spring wheat area.

<u>Loaf Volume</u> - This was volume of the baked loaf as determined by seed displacement.

All values (Protein, Ash, and Absorption) were reported on a 14% moisture basis.

DISCUSSION

The following discussion presents some of the basis for the techniques and criteria used in evaluating the samples. There are four major evaluation categories used: Kernel characteristics, to characterize the kernel; milling performance, to evaluate the general milling characteristics; mixogram patterns, to classify the flour as to type; and baking evaluation, to rate the flour as to overall baking.

Each evaluation category can be important. A sample could be of a sufficiently poor quality for a given category to eliminate it from possible future testing. However, a sample submitted for the first time and found to be questionable should be tested again to establish if it has a satisfactory or unsatisfactory classification. A sample which is consistently rated as questionable should be discarded.

All samples, as in previous years, are compared to a milling and baking standard which represents a blend of the crop year blended to a known quality. However, the samples for the individual stations were evaluated against the average results of the varieties Chris, Justin, and Selkirk from the respective stations. The agronomic and climatic conditions of the individual locations can effect the quality of the wheat sample, such that, the evaluation at certain locations could have all samples -- even the named varieties -- classified as questionable to unsatisfactory. Therefore, the evaluation ratings of one station are not directly comparable to those of another station. For example, an area may produce low protein wheats which give large and plump kernels, good milling and kernel characteristics, but low protein, and unsatisfactory baking properties such as short mixing time, low loaf volume, and weak dough characteristics. The wheat from this area could not be considered as a strong spring wheat, and would not maintain the quality expected from the spring wheat producing area. A good variety should have tolerance to a wide range of environmental conditions and the overall picture taken into consideration for establishing these varieties.

A sample rated as satisfactory to questionable has only a very minor fault; however, if it is questionable to satisfactory, the fault is more serious, but in either case the fault is not sufficient to be considered as detrimental. For questionable to unsatisfactory, and unsatisfactory to questionable, the faults are much more serious and the sample would have little future promise of being accepted if such faults are consistent.

When more than one of the factors are below the standard, the variety is marked as questionable or unsatisfactory. If sufficient data accumulated over a two- or three-year period show a definite deficiency, the variety should be discarded. If a major fault is found, the variety is undesirable and should be discarded.

Kernel Characteristics are important in determining the initial value of the wheat and, if extremely poor, could disqualify a new variety from further consideration. Because of the present grading system, it is

desirable to have a good test weight. If a sample has a low 1000 kernel weight and small kernel size distribution, it would be considered a poor sample for milling because of the high ratio of bran to endosperm. Therefore, it is desirous to have plump kernels. Wheat ash is an important factor when comparing a variety against other standard varieties. If a sample would have consistently higher wheat mineral content, it would enhance the probability of having high flour ash. Low protein would not be desirous when comparing with standard varieties, because in a low protein crop year the probability of it having such a low protein as to be undesirable is very probable. Therefore, the protein must also be considered as a characteristic when comparing other varieties grown in the same locality.

Milling Performance is very important, especially the sub-category of milling characteristics. If low extractions or high flour ash are obtained, this becomes a major factor and is quite unacceptable from a commercial milling standpoint. All flour mineral contents are reported at a constant extraction of 65% so that the figures are directly comparable. As a rule of thumb, one can approximate that each point of ash (0.01%) is equivalent to approximately 2% in extraction.

Milling characteristics are important. A sample which tends to be soft in character requires a different milling technique to be milled properly. On commercial mills flowed for hard vitreous spring wheats, soft milling characteristics cause great difficulty. Therefore, if a sample shows softness in character, it is considered to be unsatisfactory. Likewise, a sample which is extremely hard and vitreous will cause difficulty. Both types of wheat (soft or vitreous) require different roll pressures, clothing, sifter surface, and temper to be milled properly. If these wheats are blended with normal milling wheats, improper results are obtained since these characteristics are not necessarily compatible or additive. Normal to soft score indicates that the sample shows a tendency toward softness of character on the flour mill stocks and extraction. This would indicate that the sample may give some difficulty for certain mill streams and an adjustment would either have to be made in the milling flow, or in tempering procedures to compensate for these differences. The properties of this wheat may or may not be compatible with other wheats with which it may be blended, therefore, it is important to maintain varieties with as uniform milling characteristics as possible.

The amount of protein recovered in the flour for a sample is of importance. The high protein wheats yielding low protein flours are not desirable. Such a wheat would have much of the protein distributed in the outer portion of the kernel which would result in excessive protein in the feed. Therefore, higher protein in the wheat would be necessary to yield a flour of comparable protein to a wheat which gives good flour protein recovery.

Mixogram Patterns and Farinogram Patterns are important in estimating the strength and mixing tolerance or potential mixing tolerance of a flour. A long flat curve is more desirable than a short peaked curve; however, an extremely

long curve may be undesirable, since the flour would require excessive mixing to develop. The pattern of the curve is of importance as well as the length, and both must be considered.

Baking Evaluation takes into account the flour absorption, mixing time, dough characteristics, loaf volume, and machinability. A sample which has low absorption would be unsatisfactory, compared to other spring wheats with normal absorption. A sample with extremely short mixing time would also be considered undesirable as a good strong spring wheat. When a sample is in the minimal range for these values, it is considered as questionable until further testing demonstrates whether a definite deficiency exists.

Doughs having mellow to weak dough properties show a tendency towards weakness. Also, for mellow to strong, the dough is mellow, but has a tendency to be strong, and a strong to mellow dough is just the reverse. Since these characteristics are subjective rather than objective, it is necessary at times to estimate the tendency; therefore, the necessity exists for apparent double grades.

The grain or appearance of the interior of the loaf shows how well the sample stood up during baking and may point out or explain some deficiencies which have been observed during the baking test.

Loaf volume indicates potential strength of the flour in a different manner than mixing time or dough characteristics, in that it shows the ability or lack thereof for the dough to expand under pressure and to contain the entrapped gases during this expansion. Weak flours act much like rotten balloons which burst when blown up and collapse, thus yielding low loaf volume or extremely large volume and large holes in the interior of the loaf. Low protein flours and lifeless (dead) doughs exhibit the properties similar to putty and do not expand during fermentation or baking and give low loaf volume. Tough and very bucky doughs are bound too tight and impede expansion of the gases causing low loaf volume.

General Evaluation rating is given for varieties which have been tested at least for two crop years. This evaluation takes into account the various grading factors and the results of the crop years as an overall rating. The main defects and outstanding features are discussed. A variety which shows some promise with outstanding agronomic characteristics should be seriously considered and looked at in large plots, if it has not been previously, providing other sufficient information has been obtained. A sample which shows little promise should be discontinued.

FIELD PLOT NURSERY SAMPLES - 1968 CROP

Eighty-three field plot nursery samples were received from three states and seven stations. The data for the individual samples are given in Tables 1 through 6. In Table 7, are given the averages for the varieties by states for the following varieties: Chris, Justin, and Selkirk for North Dakota; Chris and Crim for Colorado. The averages for California are not given due to the fact that all of these varieties were semidwarfs, with the exception of Ramona 50 that was used as a check. The averages for these commercial varieties per location were used as standards for judging the other samples in the field plots. The 1967 and 1968 averages also are given for these varieties for the states of North Dakota and Colorado for comparative purposes.

CALIFORNIA SAMPLES

Twenty-eight samples were received from the Five Points, Meridian, and Walnut Grove, California stations. All of these samples were named varieties and were grown at every station, with an additional variety of Norteno 67 grown at Meridian. The varieties were: Ciano 67, Inia 66, Lerma Rojo 64, Nainari 60, Pitic 62, Ramona 50, Red River 68, Siete Cerros 66, and Sonora 64. The results for each variety are given in Tables 1 through 3. Although the Meridian station samples were too low in protein for bread production, they were still tested.

COLORADO SAMPLES

Sixteen samples were received from Fort Collins and Grand Junction, Colorado stations. The samples from each station were blended before shipping. Five of these samples were named varieties with two of them being semidwarf wheats. The varieties were: Chris, Crim, and Marquis (normal height varieties), and Nadadores 63 and Pitic 62 (semidwarf varieties). The eleven selections were: S 3991, S 3992, S 4014, S 4017, 67 F101, 67 F102, 67 F103, 67 F104, 67 F105, 67 F4425, and 67 F4426. The results for each variety and selection are given in Table 4. The variety, Chris, was used as a check in judging performance of the other samples submitted.

S 3991

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

S 3991 Cont'd.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory. Based on this crop year's results, this selection would show some promise as a new variety.

S 3992

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable to Satisfactory. The mixing time requirement of this sample is short and the crumb grain was the poorest of the series which was submitted.

General Evaluation - Based on this year's results, this selection would show little promise as a new variety.

S 4014

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory to Questionable. The crumb grain was open and irregular.

General Evaluation - Satisfactory. Based on this crop year's results, this sample would show some promise, although the crumb grain was only fair.

S 4017

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory.

General Evaluation - Based on this year's crop, this selection would show some promise although the absorption is minimum.

67 F101

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory. This selection does show a tendency to give soft milling characteristics.

67 F101 Cont'd.

Baking Evaluation - Satisfactory. There was a tendency for short mixing and the grain was minimum.

General Evaluation - Satisfactory to Questionable. This selection does show some promise based on this year's data, however, if the milling and baking characteristics persist it would have to be rated as showing little promise.

67 F102

Kernel Characteristics - Satisfactory. The protein content was minimum.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory to Questionable. The loaf volume was minimum.

General Evaluation - Satisfactory. Based on this crop year, this selection would show some promise, however, the volume and protein content were minimum.

67 F103

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory. The mixing time was minimal.

General Evaluation - Satisfactory. This selection shows some promise; however, if the mixing time continues to be short, it would show little promise.

67 F104

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory. This selection would show some promise.

67 F105

Kernel Characteristics - Questionable. The test weight and protein content are low.

Milling Performance - Satisfactory.

Baking Evaluation - Unsatisfactory. The absorption is very low, dough character tends to be weak, and the color is poor.

General Evaluation - Unsatisfactory. Based on this year's data, this selection would show no promise as a new variety.

67 F4425

Kernel Characteristics - Questionable. The test weight is minimum.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable. The absorption is low and the loaf volume is minimum.

General Evaluation - Questionable. Based on this year's crop, this selection would show little promise due to minimum test weight, absorption, and loaf volume.

67 F4426

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory. The sample does have a tendency to show soft milling characteristics.

Baking Evaluation - Satisfactory. Minimum absorption, protein content, and loaf volume.

General Evaluation - Questionable. This selection would show little promise as a new variety due to the milling characteristics, minimum absorption, and loaf volume.

NORTH DAKOTA SAMPLES

Thirty-nine samples were received from the Carrington and Williston, North Dakota stations. Twenty-eight of these samples were the named varieties: Canthatch, Chinook, Chris, Ciano 67, Crim, Fortuna, Justin, Manitou, Pembina, Polk, Red River 68, Selkirk, Thatcher, Tobari 66, Valley, and the new variety recently released, Waldron. Eleven of the samples were

the unnamed selections: RL 4200, ND 480, M 4-1, M 4-7, M 4-9, M 31, S 659, S 6579, and Wisc. 271. The results for each variety and selection are given in Tables 5 and 6. The average results of the 1968 data are given in Table 7.

RL 4200

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory to Questionable. The absorption and mix time were minimum at the Carrington station and poor crumb grain at the Williston station.

General Evaluation - Satisfactory to Questionable. Because of the minimum baking results based on this crop year, this sample would have to be rated as showing some promise; however, if these characteristics continue it would have to be rated as showing little promise.

ND 480

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable to Satisfactory. This sample shows a tendency to have soft milling characteristics, the extraction tends to be low, and the flour ash high.

Baking Evaluation - Satisfactory to Questionable. The sample from Carrington showed low loaf volume and poor grain.

General Evaluation - Questionable. Based on this year's results, this selection would show little promise because of the minimum milling characteristics and the somewhat erratic baking results.

M 4-1

Kernel Characteristics - Satisfactory to Questionable. Minimum test weight.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory to Questionable, giving minimum mixing time and grain of the loaf.

General Evaluation - Questionable. Based on two crop years, this selection would show little promise due to the somewhat erratic baking results.

M 4-7

Kernel Characteristics - Questionable to Satisfactory. Low test weight.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory to Questionable. The crumb grain was minimum.

General Evaluation - Questionable. Based on two crop years, this selection would show little promise. The test weight has been low, the interior of the loaf poor, and the volume has been down.

M 4-9

Kernel Characteristics - Questionable to Satisfactory. Minimum test weight.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable to Satisfactory. Minimum crumb grain.

General Evaluation - Satisfactory to Questionable. Based on two crop years, this selection would show some promise, although it did show somewhat poor loaf interior for the 1968 crop and minimum test weight.

M 31

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable. The interior of the loaf was open and harsh.

General Evaluation - Questionable to Satisfactory. Based on this crop year, this selection would show little promise especially if the loaf interior continues to be poor.

S 659

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable. This sample had low absorption.

General Evaluation - Questionable. Based on this crop year, this selection would show little promise due to the low absorption.

S 6579

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable. The absorption was low.

General Evaluation - Questionable. Based on this crop year, this selection would show little promise due to the low absorption.

Wisc. 271

Kernel Characteristics - Questionable to Satisfactory. It had minimum test weight and kernel size distribution.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable. The mixing time was long.

General Evaluation - Questionable. Based on this crop year, this selection would show little promise due to the minimum kernel characteristics and the long mixing time.

UNIFORM REGIONAL NURSERY SAMPLES - 1968 CROP

A total of 378 Uniform Regional Nursery samples were received. The samples represented 16 stations from six states. No blends were made of the samples for this crop year due to the lack of compatibility and were milled as individual samples to eliminate any possible erroneous results. Thus, a total of 378 samples were milled and baked. Twenty-four samples were received from each of the stations, except the Bonners Ferry, Idaho series which consisted of only 18 samples. Sixteen selections were included for quality evaluation in the Uniform Regional Nursery samples. The remainder of the samples were the commercially named varieties of: Chris, Justin, Manitou, Marquis, Polk, Red River 68, Thatcher, and Waldron.

Eighteen samples were received from the Bonners Ferry, Idaho station. Five named varieties, Justin, Marquis, Polk, Thatcher, and Waldron were not included in the series and the one selection II-62-2. Data for the samples submitted are given in Table 8.

Ninety-six samples were received from the four Minnesota stations: Crookston, Morris, St. Paul, and Waseca. Data for these samples are given in Tables 9 through 12. The samples from Waseca were bleached and the samples from Crookston and St. Paul were badly weathered. This weathering effected the milling to such a degree that the majority of the samples showed soft milling characteristics.

Seventy-two samples were received from three stations in Montana; Bozeman, Havre, and Sidney. Data for these samples are given in Tables 13 through 15.

One hundred and twenty samples were received from five stations in North Dakota: Dickinson, Fargo, Langdon, Minot, and Williston. The data for these samples are given in Tables 16 through 20. The samples from Langdon were badly weathered, thus causing the majority of the samples to show soft milling characteristics.

Forty-eight samples were received from two stations in South Dakota: Highmore and Watertown. The data for these samples are given in Tables 21 and 22.

Twenty-four samples were received from Lind, Washington. The data for these samples are given in Table 23.

In Table 24 are given the average results for each of the twenty-four samples submitted from the five states and 15 stations. The results for Bonners Ferry, Idaho were not included in this table of averages because of the missing samples. The results for kernel characteristics, milling performance, and mixogram patterns were obtained by averaging the results

from the 15 tables--9 through 23. However, the flour ash of the Justin sample from Sidney was omitted because of inseparable stones in the wheat sample. The baking results were obtained from a blend of the flours in equal proportions from each of the stations for the respective variety or selection. The regular 100 gram straight dough rich formula baking procedure was used in baking the flour blends. The general evaluation column includes the general overall performance of each of the samples, as well as results obtained from tolerance bake on the flour blends. This affords a ready reference of all of the samples tested.

For simplicity and brevity of the report, as in previous reports, each variety will be discussed from the general overall average of the results given in Table 24, rather than the individual stations. The general evaluation summarizes the results from the individual stations or from two or more crop years, when applicable, as well as the tolerance test. The evaluation is more meaningful for the overall performance of variety when at least two or more crop years are included.

In Table 25, the averages are given by states for the two varieties of Chris and Justin. This table gives a comparison of the varieties by state, as well as state averages of the two varieties for comparative purposes, and the 1968 grand averages. The 1967 grand averages for the same two varieties are also given for comparison of the two crop years. In general, the 1968 crop had about the same kernel characteristics as last year with approximately 1/2% higher protein content. The milling was somewhat poorer than last year showing a percent less in flour extraction, which was no doubt a reflection of the badly weathered samples which had been rained on during the harvest. The absorption was higher than last year by approximately 2%, which may be a possible reflection of the protein content. The mixing time was the same although the mixogram pattern was stronger and was reflected in the dough characteristics. The crumb color was slightly down but the crumb grain was better than last year, and the loaf volume equal to the 1967 crop.

The average results of the varieties, Chris and Justin, for each of the individual stations, were used as a standard for the other selections from that station; therefore, a variety or selection may be rated satisfactory at two different stations, but comparison of the data may show much poorer results for one station due to adverse agronomic conditions. Thus in actuality, the sample with poor results could be rated as unsatisfactory quality wise when compared to the overall spring wheat area. The state averages in Table 25 are additional guides for the relative performance for the crop year by states.

The average results for the new varieties or selections were:

RL 4200

Kernel Characteristics - Satisfactory.

RL 4200 Cont'd.

Milling Performance - Satisfactory to Questionable. This selection shows a tendency to give minimum flour extraction and also to have soft milling characteristics.

Baking Evaluation - Questionable. This selection shows a tendency towards minimum absorption, short mixing time, and a tendency to give weak doughs.

General Evaluation - Unsatisfactory to Questionable. Based on two crop years' results, this selection would show little promise as a new variety because of its minimum milling properties, low absorption and short mixing time, as well as a tendency to give weak doughs.

RL 4220

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable to Satisfactory. The milling characteristics of this selection definitely show a tendency towards softness.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory to Questionable. Based on this crop year's data, this selection would show some promise as a new variety, although the milling characteristics definitely show a tendency towards softness but did not appear to effect the extraction.

II-62-2

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory. The milling performance was very satisfactory even though the sample does have a tendency to show softness in milling.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory. This selection, based on this year's crop results, would show some promise as a new variety.

II-62-61

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory to Questionable. This selection definitely shows softness in the milling characteristics, although it did not appear to effect the overall flour extraction or ash it would appear to have some problems when blended with other wheats.

II-62-61 Cont'd.

Baking Evaluation - Questionable. The average baking results show this sample to have 3% less absorption than the standard varieties, Chris and Justin. Also, it did have a tendency to require long mixing time at some stations.

General Evaluation - Questionable. Based on this crop year's results, this selection would show little promise as a new variety, primarily due to the low absorption and somewhat long mixing requirements.

II-62-68

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable. This selection shows definite long mixing time for certain stations and also minimum absorption, as well as loaf volume.

General Evaluation - Questionable to Unsatisfactory. This selection would show little promise as a new variety because of the baking results.

K-48-44

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory to Questionable. This selection shows a definite tendency towards low extraction.

Baking Evaluation - Questionable. The baking absorption for this selection is definitely minimal.

General Evaluation - Questionable. This selection would show little promise as a new variety, based on this crop year's results.

ND 476

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable to Satisfactory. This selection gives low extraction, maximum ash and a tendency to have soft milling characteristics.

Baking Evaluation - Satisfactory to Questionable. This selection shows minimum absorption and maximum mixing time.

General Evaluation - Questionable. Based on this crop year's results, this selection would show little promise as a new variety because of the milling characteristics which are somewhat erratic and the baking performance, especially the minimum absorption.

ND 481

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory. Although this selection does have a tendency to show soft milling characteristics, the milling performance was satisfactory.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory to Questionable. Based on this crop year's results, this selection would be rated as showing some promise as a new variety although it does have a tendency to give minimum absorption at certain locations and somewhat long mixing time.

ND 482

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory to Questionable. This sample does show a tendency to give soft milling characteristics.

Baking Evaluation - Satisfactory.

General Evaluation - Questionable. Although the baking performance of the individual samples was generally satisfactory, this sample does show lack of tolerance to mixing; therefore, this selection would show little promise as a new variety.

M 4-1

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable to Satisfactory. Low extraction and a definite tendency to show soft milling characteristics.

Baking Evaluation - Satisfactory to Questionable. The mixing time tended to be long for this sample and the interior of the loaf poor.

General Evaluation - Questionable. Based on this crop year's results, this selection would show little promise as a new variety based on the milling performance and the baking results.

M 4-7

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

M 4-7 Cont'd.

Baking Evaluation - Questionable. Excessive mixing time and a strong dough.

General Evaluation - Questionable. Based on this crop year's results, this selection would show little promise as a new variety primarily because of the long mixing time and the tendency for too strong a dough.

MT 6610

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable to Unsatisfactory. Low extraction and a definite tendency to show soft milling characteristics.

Baking Evaluation - Satisfactory to Questionable. Minimum absorption.

General Evaluation - Questionable. Based on this crop year's results, this selection would show little promise as a new variety due to the milling characteristics and the minimum absorption.

MT 6661

Kernel Characteristics - Questionable. Low test weight.

Milling Performance - Questionable to Unsatisfactory. Low extraction and maximum ash and a definite tendency to show soft milling characteristics.

Baking Evaluation - Satisfactory.

General Evaluation - Questionable to Unsatisfactory. Based on this crop year's results, this selection would show little promise as a new variety. The low test weight and poor milling performance were the main deficiencies.

S 659

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable. This sample shows a tendency to give low extraction and soft milling characteristics.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory to Questionable. This selection would show some promise as a new variety based on this crop year's results, however, it does have minimum milling performance.

S 6579

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable to Satisfactory. Minimum extraction and a tendency to show soft milling characteristics.

Baking Evaluation - Satisfactory.

General Evaluation - Questionable. Based on this crop year's results, this selection would have to be rated as showing little promise primarily due to the erratic results obtained at the various locations.

Wisc. 271

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable to Satisfactory. This selection definitely shows a tendency for soft milling characteristics.

Baking Evaluation - Questionable. Long mixing requirements.

General Evaluation - Questionable. Based on two crop years, this selection would show little promise as a new variety primarily because of the tendency for soft milling characteristics, minimum absorption and long mixing requirements.

SAWFLY YIELD NURSERY SAMPLES - 1968 CROP

Sixty-six samples were received from two stations in Montana and one station in North Dakota. Sixteen samples were received from each of the stations in Dutton and Sidney, Montana and Williston, North Dakota. Four of these samples were the named varieties: Chinook, Fortuna, Rescue, and Thatcher. Twelve of the samples were the selections: CN 164134, CN 169293, CN 530411, CN 530445, MT 6661, MT 6669, MT 6679, ND 659, ND 6556, ND 6572, ND 6579, and ND 66124. The data for these samples for the individual stations are given in Tables 26 through 28. In Table 30, are the averages for these data. This year, for each station, the varieties of Chinook, Fortuna, Rescue, and Thatcher were averaged for standard performance and results of the individual samples were compared to this average.

Also, another series of 18 sawfly samples was received from the Williston station. Three of these samples were the named varieties, Chris, Fortuna, and Justin. Fifteen of the samples were the selections: S 663, S 666, S 6531, S 6534, S 6625, S 6662, S 6673, S 6677, S 6679, S 6681, S 6686, S 6689, S 6694, S 66118, and S 66137. The data for these samples are given in Table 29.

CN 164134

Kernel Characteristics - Satisfactory to Questionable. Somewhat low 1,000 kernel weight, and small kernel size distribution.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory to Questionable. Somewhat erratic results for the different stations.

General Evaluation - Satisfactory to Questionable. Based on this crop year's results, this selection would show some promise as a new variety; however, it does have some kernel characteristic deficiencies and somewhat erratic baking results.

CN 169293

Kernel Characteristics - Satisfactory to Questionable. The test weight and kernel size were down at the Williston station.

Milling Performance - Questionable. This sample tended to give low extraction and soft milling characteristics.

Baking Evaluation - Questionable to Satisfactory. This selection tended to give somewhat erratic results for the different stations--from very strong to dead doughs and the mixing time was somewhat excessive.

General Evaluation - Questionable. Based on this crop year's results, this selection would show little promise as a new variety because of its milling characteristics and baking performance.

CN 530411

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory. This selection would show some promise as a new variety.

CN 530445

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable to Satisfactory. The loaf volume is the lowest of the series, has a tendency towards low absorption, and a weak dough.

General Evaluation - Questionable. This selection would show little promise as a new variety due to absorption, mixing time, and loaf volume.

MT 6661

Kernel Characteristics - Questionable to Satisfactory. Minimum test weight.

Milling Performance - Questionable. Minimum extraction and maximum ash.

Baking Evaluation - Questionable. The baking results were erratic showing a general tendency for poor crumb grain, and also low loaf volume.

General Evaluation - Questionable. This selection would show little promise as a new variety based on this crop year's results due primarily to its milling characteristics and erratic baking results.

MT 6669

Kernel Characteristics - Questionable to Satisfactory. Tendency to give minimum test weight and 1,000 kernel weight.

Milling Performance - Satisfactory to Questionable. Minimum flour extraction.

Baking Evaluation - Questionable. Mixing time appears to be excessive.

General Evaluation - Questionable to Unsatisfactory. Based on two crop years, this selection would show little promise as a new variety due to deficiencies in each of the three categories.

MT 6679

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable to Satisfactory. Somewhat erratic results at the different locations.

General Evaluation - Questionable. Based on two crop years, this selection would show little promise as a new variety due to inconsistent results for the two crop years.

ND 659

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable to Satisfactory. Tends to give minimum extraction.

Baking Evaluation - Satisfactory to Questionable. Somewhat erratic results for the different stations.

General Evaluation - Satisfactory to Questionable. Based on this crop year's results, this selection would show some promise as a new variety; however, if the erratic baking results persist in other crop years, it would show little promise.

ND 6556

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory to Questionable. This selection has a tendency to require long mixing for proper development.

General Evaluation - Satisfactory to Questionable. This selection would show some promise as a new variety; however, if the long mixing requirement is excessive and continues for this selection, it would have to be rated as showing little promise.

ND 6572

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable to Satisfactory. Shows low extraction and maximum ash.

Baking Evaluation - Satisfactory.

ND 6572 Cont'd.

General Evaluation - Satisfactory to Questionable. This selection would show some promise as a new variety; however, if the poor milling performance persists in other crop years, it would show little promise.

ND 6579

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory to Questionable. This selection shows a tendency to a long mixing requirement.

General Evaluation - Satisfactory to Questionable. This selection shows some promise as a new variety based on two crop years, however, if the long mixing requirement is excessive it would show little promise.

ND 66124

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable to Satisfactory. This selection shows excessive mixing requirement.

General Evaluation - Questionable. This selection shows little promise as a new variety due to the long mixing requirement.

A general evaluation column in Table 29 describes the overall performance for the selections of the special series from Williston, North Dakota, as to their potential as new varieties. No discussion is included for this series since they represent one station and one crop year's data.

TABLE 1

QUALITY DATA ON FIELD PLOT NURSERY SAMPLES

Five Points, California

1968 CROP

Variety or Sel. No.	T.W. 1/	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/	Gen. Eval. 9/
			Lg.	Med.	Sm.																			
	#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.		
Ciano 67	64.0	38.2	36	59	5	74.6	1.52	15.3	S	68.8	.35	13.9	N-S	S-Q	67.3	5	67.3	3-3/4	S	90	95	945	S	4
Inia 66	63.5	38.3	48	47	5	75.2	1.46	14.4	S	66.9	.34	13.5	N-S	S-Q	67.0	5	67.0	3-1/2	S	85	82	895	S	4
Lerma Rojo 64	62.1	35.8	27	68	5	74.1	1.54	14.4	S	62.7	.36	12.6	VS	U	65.7	2	65.7	1-1/2	W	95	80 I	850	U	1
Nainari 60	59.2	36.1	46	51	3	75.2	1.49	13.5	Q	60.6	.41	12.1	S	U	65.7	3	65.7	2	M	94 C	82	865	Q	2
Pitic 62	58.2	30.3	24	67	9	73.8	1.65	13.9	Q	57.3	.41	11.7	S	U	63.2	2	63.2	1-3/4	M	93	95	790	U	1
Ramona 50	61.4	41.0	68	29	3	76.3	1.58	14.1	S	65.8	.37	13.1	N-S	Q-S	64.7	2	64.7	1-1/2	M	88	82 I	860	U	1
Red River 68	62.9	34.8	26	67	7	74.0	1.62	14.6	S	67.4	.42	13.8	N	S	68.2	7	68.2	5	S	85 SlC	83	815	S-Q	3
Siete Cerros 66	61.8	35.6	28	64	8	74.0	1.54	12.4	S	61.4	.43	11.3	N-S	Q	66.3	4	66.3	3	M-S	84 C	70	745	Q	2
Sonora 64	62.4	36.8	48	46	6	75.1	1.57	14.6	S	68.1	.35	13.3	N-S	Q-S	64.7	5	64.7	3-3/4	S	88 SlC	75	835	Q	2

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.
2/ 14% moisture basis.
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft, V - Very.
5/ Refer to Reference Mixograms for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.
9/ 1 - No Promise, 2 - Little Promise, 3 - Some Promise, 4 - Good Promise.

TABLE 2

QUALITY DATA ON FIELD PLOT NURSERY SAMPLES

Meridian, California

1968 CROP

Variety or Sel. No.	T.W. 1/	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/	Gen. Eval. 9/
			Lg.	Med.	Sm.																			
	#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.		
Ciano 67	64.6	43.9	76	22	2	76.7	1.69	9.7	S-Q	67.5	.40	9.1	N-S	S	61.3	4	61.3	3-1/2	M SlD	97 W	70	730	U-Q	2
Inia 66	63.1	46.9	76	21	3	76.7	1.38	7.9	S-Q	65.4	.39	7.7	N-S	Q-S	58.7	5	58.7	4	D	96	65	660	U	1
Lerma Rojo 64	62.5	42.0	73	25	2	76.6	1.38	7.4	S-Q	64.5	.33	6.9	S	U	56.7	1	56.7	1-3/4	VW	98	75	690	U	1
Nainari 60	60.3	47.4	78	19	3	76.8	1.67	8.0	S-Q	64.5	.40	6.7	S	U	56.3	1	56.3	1-1/2	W-M D	95 BC	60	575	U	1
Norteno 67	61.9	47.8	74	24	2	76.6	1.63	8.5	S-Q	65.8	.42	7.3	N-S	Q	58.3	2	58.3	2-1/4	W-M D	85 C	65	640	U	1
Pitic 62	60.4	44.2	81	18	1	77.0	1.60	7.5	S-Q	59.6	.38	6.1	VS	U	55.1	1	55.1	1-1/2	D	--	Solid	475	U	1
Ramona 50	61.8	49.8	70	27	3	76.4	1.49	7.7	S-Q	66.7	.40	7.5	N-S	Q-S	57.5	1	57.5	1-1/2	D	90 C	60 S	570	U	1
Red River 68	63.7	41.8	67	32	1	76.3	1.63	9.1	S-Q	67.2	.38	8.2	N-S	Q-S	59.7	7	59.7	5-3/4	D	93 C	63 S	625	U	1
Siete Cerros 66	63.1	44.6	69	28	3	76.3	1.49	7.5	S-Q	62.1	.43	6.2	N	Q	57.2	2	57.2	2-3/4	D	--	Solid	450	U	1
Sonora 64	63.3	42.2	74	23	3	76.6	1.67	8.4	S-Q	67.5	.41	7.2	N-S	S-Q	57.2	5	57.2	5	D	88 C	63 S	580	U	1

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.
2/ 14% moisture basis
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft, V - Very.
5/ Refer to Reference Mixograms for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.
9/ 1 - No Promise, 2 - Little Promise, 3 - Some Promise, 4 - Good Promise.

TABLE 3

QUALITY DATA ON FIELD PLOT NURSERY SAMPLES

Walnut Grove, California

1968 CROP

Variety or Sel. No.	T.W. 1/	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/	Gen. Eval. 9/
			Lg.	Med.	Sm.																			
	#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.		
Ciano 67	64.3	46.5	72	28	0	76.6	1.47	14.5	VS	70.3	.36	13.3	N-S	S	67.6	5	67.6	3	S	99	98	985	S	4
Inia 66	63.9	50.5	72	26	2	76.5	1.32	13.1	VS	68.9	.36	12.2	N-S	S	66.3	4	66.3	3-1/2	M-S	88	80 IO	835	S-Q	3
Lerma Rojo 64	63.6	47.1	67	32	1	76.3	1.40	12.6	VS	66.4	.36	10.9	S	U	63.5	2	63.5	1-1/2	VW	95	75 O	840	U	1
Nainari 60	61.6	47.6	76	22	2	76.7	1.44	11.5	S	65.6	.39	10.3	S	U	63.8	2	63.8	1-1/2	VW	94 C	75 O	805	U	1
Pitic 62	60.4	39.7	53	44	3	75.5	1.32	11.1	S	62.1	.38	9.1	S	U	59.7	1	59.7	1-1/4	VW	94 C	78	780	U	1
Ramona 50	62.5	52.3	74	26	0	76.7	1.40	12.8	VS	69.5	.35	11.6	N-S	S-Q	62.8	2	62.8	1-1/4	VW	98	82	850	U	1
Red River 68	63.9	41.8	52	46	2	75.5	1.44	13.3	S	69.6	.40	12.4	N-S	S	67.6	5	67.6	3-1/2	S	95	83	850	S	3
Siete Cerros 66	63.9	40.5	51	46	3	75.4	1.35	10.7	S-Q	64.5	.40	9.2	N	S-Q	63.2	3	63.2	2-3/4	M S1D	94 S1C	70	710	Q	2
Sonora 64	63.5	44.1	56	41	3	75.7	1.47	13.7	S	70.7	.34	12.5	N-S	S-Q	64.2	5	64.2	3-1/2	S	85 S1G	78 O	840	S-Q	3

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.
2/ 14% moisture basis
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft, V - Very.
5/ Refer to Reference Mixograms for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.
9/ 1 - No Promise, 2 - Little Promise, 3 - Some Promise, 4 - Good Promise.

TABLE 4

QUALITY DATA ON FIELD PLOT NURSERY SAMPLES

Fort Collins and Grand Junction, Colorado

1968 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size Lg.	Kernel Size Med.	Kernel Size Sm.	Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/	Gen. Eval. 9/
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.		
Chris	13751	57.3	33.2	71	28	1	76.5	1.64	15.5	S	65.0	.33	14.2	N	S	66.0	4	66.0	3	S-M	102	90 O	1000	S	
Crim	13465	57.4	32.8	70	28	2	76.4	1.68	15.9	S	65.5	.34	14.7	N	S	67.6	5	67.6	3	S-M	103 W	85 O	1000	S	
Marquis	3641	58.5	33.3	71	27	2	76.5	1.78	14.8	S	66.1	.36	13.8	N	S	65.3	4	65.3	2-1/2	S-M	100 W	95	925	S-Q	
Nadadores 63	13931	57.1	40.5	78	21	1	76.9	1.53	13.2	S	69.4	.32	11.5	N	S	64.7	3	63.7	2-1/2	W	98 S1C	85 HT	900	U	
Pitic 62	13927	56.5	39.4	78	22	0	76.9	1.57	12.3	Q-U	56.0	.35	9.9	VS	U	58.7	1	58.7	1-1/2	VW	97 S1C	70 S	790	U	
S 3991		58.3	41.0	78	21	1	76.9	1.73	15.5	S	69.4	.32	13.7	N	S	65.7	4	65.7	2-3/4	M-S	100 W	91 O	1040	S	3
S 3992		58.5	39.2	75	24	1	76.7	1.72	16.0	S	70.1	.34	14.3	N	S	67.0	4	67.0	2-1/2	S-M	100	83 OI	1100	Q-S	2
S 4014		58.4	44.2	84	16	0	77.2	1.76	15.0	S	69.4	.33	13.2	N	S	66.3	5	66.3	3-1/2	S	100	85 OI	1005	S-Q	3
S 4017		58.4	42.4	84	15	1	77.2	1.73	14.0	S	69.9	.31	12.7	N	S	64.7	5	64.7	3-1/4	M-S	98	92	1002	S	3
67 F101		59.0	42.0	80	19	1	77.0	1.76	15.4	S	70.5	.35	13.8	N-S	S	67.0	4	67.0	2-3/4	S-M	103	87 OI	1100	S	3
67 F102		57.8	43.3	78	21	1	76.9	1.58	14.1	S	67.5	.36	12.5	N	S	65.3	5	65.3	3-1/2	M-S	100 W	92 I	920	S-Q	3
67 F103		57.8	41.0	78	21	1	76.9	1.72	16.1	S	69.1	.33	14.1	N	S	67.0	4	67.0	2-1/2	S-M	100	93 S1OI	1075	S	3
67 F104		57.3	38.8	69	30	1	76.4	1.84	14.3	S	69.6	.38	12.7	N	S	66.6	6	66.6	3-3/4	S-M	100 W	97	1050	S	3
67 F105		56.3	38.0	68	30	2	76.3	1.62	13.5	Q	67.9	.34	11.9	N	S	62.5	3	61.5	2-3/4	M	98 DG	94 S1O	1030	U	1
67 F4425		56.4	35.2	64	35	1	76.2	1.70	13.4	Q	68.8	.30	12.0	N	S	63.2	5	63.2	3-1/2	S-M	98 S1C	95	925	Q	2
67 F4426		57.8	36.9	63	36	1	76.1	1.70	14.1	S	66.7	.31	12.0	N-S	S	64.2	5	64.2	4	S-M	100 W	93 S1O	945	Q-S	2

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.
2/ 14% moisture basis
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft, V - Very.
5/ Refer to Reference Mixograms for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.
9/ 1 - No Promise, 2 - Little Promise, 3 - Some Promise, 4 - Good Promise.

TABLE 5

QUALITY DATA ON FIELD PLOT NURSERY SAMPLES

Carrington, North Dakota

1968 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size Lg.	Kernel Size Med.	Kernel Size Sm.	Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.	
Chris	13751	60.0	27.9	30	68	2	74.4	1.65	15.4	S	64.9	.35	14.3	N	S	65.3	4	65.3	3-1/4	S	102 S1C	95	1070	S
Ciano 67		60.4	34.7	48	50	2	75.3	1.66	14.8	S	69.6	.42	13.7	N-S	Q	65.7	6	65.7	5	S	100	97 S1O	1100	S
Justin	13462	58.6	31.5	48	48	4	75.2	1.87	15.8	S	66.6	.37	14.6	N	S	66.3	6	66.3	4-1/2	S	98 S1C	97 S1O	1025	S
Manitou	13775	58.6	29.4	35	62	3	74.6	1.62	15.1	S	68.2	.36	14.2	N	S	64.4	4	64.4	3	S	98 S1C	96	980	S-Q
Pembina	13332	57.9	32.5	30	66	4	74.3	1.64	14.3	S-Q	70.3	.35	13.4	N	S	62.8	6	62.8	5	S	99	98	1050	Q
Polk	13773	61.6	39.2	52	47	1	75.6	1.61	14.5	S	68.2	.34	13.4	N-S	S	64.4	5	64.4	4-3/4	S	100	97	1035	S
Red River 68		61.8	37.3	24	73	3	74.1	1.71	14.4	S	70.4	.34	13.7	N-S	S	67.0	8	67.0	6-3/4	S1B	102	95 S1I	995	U
Selkirk	13100	57.2	35.1	45	53	2	75.2	1.70	13.5	Q-S	71.2	.36	12.6	N	S	62.5	3	62.5	3-1/4	M-S	100	94 S1I	920	Q
Thatcher	10003	59.0	32.4	13	82	5	73.4	1.64	13.5	S	70.7	.36	12.5	N	S	60.7	4	60.7	3-3/4	M	100 S1C	94 S1I	940	Q
Tobari 66		60.4	45.5	46	52	2	75.2	1.65	14.4	S	69.0	.32	13.1	N-S	S	64.7	7	64.7	5	S	98	97	995	S
Valley		57.7	36.4	42	54	4	74.9	1.67	14.2	Q-S	67.6	.32	13.3	N-S	S	63.5	6	63.5	5	S	100	95 S1O	990	Q
RL 4200		60.4	41.7	48	50	2	75.3	1.69	14.7	S	66.3	.36	13.8	N	S	64.2	3	64.2	2-3/4	S-M	102 C	93 S1O	955	Q
Waldron	13828	58.0	34.5	58	39	3	75.8	1.82	15.3	S-Q	68.2	.37	14.8	N-S	S	68.2	5	68.2	4	S-M	96 DC	93 O	990	S-Q
ND 480		59.1	33.8	53	46	1	75.6	1.68	15.6	S	63.6	.39	13.9	N-S	Q	67.9	7	67.9	4-1/2	S	97 DC	88 IO	965	Q

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.
2/ 14% moisture basis
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft, V - Very.
5/ Refer to Reference Mixograms for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close, H - Harsh.

TABLE 6

QUALITY DATA ON FIELD PLOT NURSERY SAMPLES

Williston, North Dakota

1968 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size Lg.	Med.	Sm.	Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.	
Canthatch	13345	60.9	27.0	6	91	3	73.2	1.51	14.7	S	66.4	.37	14.1	N	S	62.8	6	62.8	4-1/4	S	98 SlC	95 SlO	945	Q-S
Chinook	13220	61.9	30.0	9	90	1	73.4	1.49	14.8	S	66.1	.34	14.0	N-S	S-Q	63.5	6	63.5	4-1/4	S-M	100 SlC	90 SlO	820	Q
Chris	13751	60.4	26.5	3	94	3	73.0	1.57	15.0	S	66.7	.35	14.2	N	S	64.2	5	64.2	3-3/4	S	100 SlC	92 SlI	935	S
Ciano 67		61.5	28.6	2	96	2	73.0	1.52	14.6	S	69.5	.32	13.8	N-S	S	63.5	8	63.5	6	VS	102	92 SlI	950	Q-S
Crim	13465	60.1	29.1	23	75	2	74.1	1.61	14.0	S	66.6	.37	13.6	N-S	S-Q	65.7	7	65.7	6-1/4	S	100	85 O	930	S-Q
Fortuna	13596	61.4	34.0	17	82	1	73.8	1.54	13.5	S	70.9	.33	12.6	N	S	61.9	4	61.9	3-1/2	S-M	100 SlC	88 O	890	Q
Justin	13462	58.6	28.3	14	84	2	73.6	1.69	17.3	S-Q	67.6	.34	16.3	N	S	67.9	6	67.9	4-1/2	S-M	102 SlC	86 OH	895	S-Q
Manitou	13775	60.7	26.9	7	90	3	73.2	1.51	14.7	S	67.2	.36	13.8	N	S	62.5	5	62.5	4	S-M	100 SlC	87 O	905	Q-S
Pembina	13332	59.9	27.0	6	92	2	73.2	1.58	13.4	S-Q	65.2	.39	12.7	N	Q	60.7	6	60.7	6	S-M	102	94 SlI	905	Q
Polk	13773	62.5	33.9	26	73	1	74.3	1.52	14.9	S	67.3	.36	13.8	N-S	S	62.5	6	62.5	4-1/2	S	98	98	1025	Q-S
Red River 68		61.2	28.5	2	93	5	72.9	1.58	14.5	S	67.6	.36	14.0	N	S	64.4	11	64.4	9-3/4	B	99	93 SlO	945	U
Selkirk	13100	56.7	27.5	3	94	3	73.0	1.47	15.7	Q-S	68.8	.33	14.8	N	S	65.0	5	65.0	4	S-M	97	95	1025	S
Thatcher	10003	60.7	25.4	4	93	3	73.1	1.53	14.2	S	65.0	.36	13.6	N	S-Q	61.3	6	61.3	5	S-M	96 DC	84 O	885	Q
Tobari 66		60.9	30.3	3	93	4	73.0	1.47	13.8	S	71.4	.31	12.8	N-S	VS	64.4	11	64.4	10-1/4	VS	98	88 IO	900	U
Valley		60.0	32.4	31	68	1	74.5	1.47	15.0	S	64.9	.35	13.8	N	S-Q	64.4	5	64.4	3-3/4	S-M	99	90 O	1005	S
RL 4200		59.8	26.0	4	94	2	73.1	1.49	15.1	S	66.4	.35	14.2	N	S	64.2	5	64.2	3-3/4	S	98 SlC	80 OI	940	S-Q
Waldron	13828	59.9	30.1	26	73	1	74.3	1.57	14.9	S	66.7	.34	14.1	N	S	63.5	6	63.5	4-3/4	S	98	95	990	S-Q
ND 480		59.3	28.2	13	86	1	73.6	1.61	15.6	S	65.9	.35	14.2	N	S-Q	65.7	7	65.7	4-1/2	S	100 SlC	94	945	S
M 4-1		58.5	26.3	5	93	2	73.2	1.63	17.5	S-Q	65.7	.36	16.0	N	S	66.6	5	66.6	3-1/2	S	101 SlC	83 IO	990	S-Q
M 4-7		57.7	29.2	8	90	2	73.3	1.70	17.6	Q-S	68.1	.32	16.7	N	S	66.6	6	66.6	4-1/2	S	100	83 I	960	S-Q
M 4-9		57.4	24.0	1	94	5	72.8	1.67	17.6	Q-S	68.3	.36	16.9	N	S	67.9	6	67.9	4-1/4	S-M	103 SlC	81 OI	1035	Q-S
M 31		59.9	26.5	2	95	3	73.0	1.57	16.8	S	69.1	.38	16.0	N	S	64.4	6	64.4	5	S	102 SlC	84 OH	920	Q
S 659		62.0	32.2	18	81	1	73.9	1.51	13.8	S	66.3	.32	13.4	N	S	62.8	6	62.8	4-3/4	S	100 W	88 I	930	Q
S 6579		59.9	34.2	24	75	1	74.2	1.48	13.3	S	69.3	.32	12.9	N	S	62.3	6	62.3	5	M-S	98 SlC	90 OI	890	Q
Wisc. 271		57.4	23.8	1	86	13	72.4	1.60	17.2	Q-S	68.2	.35	16.3	N	S	65.3	8	65.3	6-3/4	S	102 SlC	94	1100	Q

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.
2/ 14% moisture basis
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft, V - Very.
5/ Refer to Reference Mixograms for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.

TABLE 7

QUALITY DATA ON FIELD PLOT STATE AVERAGES

1968 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/
				Lg.	Med.	Sm.																		
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.	
NORTH DAKOTA																								
Chris	13751	60.2	27.2	17	80	3	73.7	1.61	15.2	S	65.8	.35	14.3	N	S	64.8	5	64.8	3-1/2	S	101 S1C	94	1002	S
Justin	13462	58.6	29.9	31	66	3	74.4	1.78	16.6	S	67.1	.36	15.5	N	S	67.1	6	67.1	4-1/2	S	100 S1C	92 S1O	960	S
Selkirk	13100	57.0	31.3	24	73	3	74.1	1.59	14.6	Q-S	70.0	.35	13.7	N	S	63.8	4	63.8	3-1/2	S-M	99	95	973	S-Q
1968 Average 9/		58.6	29.5	24	73	3	74.1	1.66	15.5	S	67.6	.35	14.5	N	S	65.2	5	65.2	3-3/4	S	100 S1C	94	978	S
1967 Average 9/		58.9	25.5	7	89	4	73.2	1.66	15.2	S	65.3	.37	14.4	N	S	63.5	5	63.5	4	S	99 S1C	88 O	973	S-Q
COLORADO																								
Chris	13751	57.3	33.2	71	28	1	76.5	1.64	15.5	S	65.0	.33	14.2	N	S	66.0	4	66.0	3	S-M	102	90 O	1000	S
Crim	13465	57.4	32.8	70	28	2	76.4	1.68	15.9	S	65.5	.34	14.7	N	S	67.6	5	67.6	3	S-M	103 W	85 O	1000	S
1968 Average 10/		57.4	33.0	71	27	2	76.5	1.66	15.7	S	65.3	.34	14.5	N	S	66.8	5	66.8	3	S-M	103	88 O	1000	S
1967 Average 10/		62.3	35.1	69	28	3	76.3	1.70	14.1	S	61.9	.41	13.9	N	S	67.3	4	67.3	2-3/4	S	100 S1C	80 OI	928	S
CROP YEAR AVERAGE																								
Crop Average 1968		58.0	31.3	48	49	3	75.3	1.66	15.6	S	66.5	.35	14.5	N	S	66.0	5	66.0	3-1/4	S	102 S1C	91 S1O	989	S
Crop Average 1967		60.6	30.3	38	58	4	74.7	1.68	14.7	S	63.6	.39	14.3	N	S	65.4	5	65.4	3-1/4	S	100 S1C	84 O	951	S

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.
2/ 14% moisture basis
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft, V - Very.
5/ Refer to Reference Mixograms for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.
9/ Averages are obtained using the results for the varieties of Chris, Justin, and Selkirk.
10/ Averages are obtained using the results for the varieties of Chris and Crim.

TABLE 8

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Bonners Ferry, Idaho

1968 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/	Gen. Eval. 9/
				Lg.	Med.	Sm.																			
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.		
Chris	13751	60.0	34.2	57	43	0	75.9	1.26	15.1	S	62.8	.39	14.5	N	S	67.3	5	67.3	3-1/2	S	102 S1W	90 OI	200	S	
Manitou	13775	59.0	35.0	57	41	2	75.8	1.34	15.8	S	62.4	.39	15.1	N	S	65.0	3	65.0	2-1/4	S-M	100 S1W	92 O	195	Q	
Red River 68		59.5	39.2	51	48	1	75.5	1.27	15.2	S	63.5	.40	15.0	N-S	S-Q	70.3	8	70.3	5-3/4	VS	100 S1W	88 O	181	Q	
RL 4200		58.0	37.5	28	70	2	74.3	1.22	14.4	Q	65.7	.38	14.2	N	S	66.6	5	66.6	4-1/2	M-S	98	95 I	204	S	3
RL 4220		59.0	35.8	48	51	1	75.4	1.33	15.1	S	63.1	.37	14.7	N	S	65.3	4	65.3	3	S-M	102	92 O	191	Q	2
II-62-61		62.0	40.2	73	26	1	76.6	1.17	13.3	VS	64.7	.37	12.4	N	S	63.2	4	63.2	3-3/4	S	99	96	187	Q	2
II-62-68		62.0	35.1	62	37	1	76.1	1.30	14.2	S	64.7	.41	13.4	N	S	65.7	5	65.7	4-1/2	S-M	101 S1C	96 C	173	Q	2
K-48-44		60.0	37.6	66	33	1	76.3	1.33	15.2	S	62.4	.40	14.6	N	S	68.5	5	68.5	3-1/4	S	105 S1W	96	193	S	3
ND 476		60.0	37.7	59	40	1	75.9	1.19	16.2	S	61.1	.35	15.4	N	S	66.6	4	66.6	3	S	100 S1W	95 S1O	195	S	3
ND 481		58.0	40.3	65	33	2	76.2	1.37	15.5	S-Q	60.9	.39	14.9	N	S	67.6	5	67.6	3-1/4	S	105 W	80 OI	210	S-Q	3
ND 482		60.0	44.1	81	17	2	77.0	1.42	16.6	S	63.1	.33	16.3	N	VS	70.3	7	70.3	4-1/2	S	101 W	95 S1I	201	S	4
M 4-1		59.0	35.3	51	47	2	75.5	1.31	14.4	S	63.9	.34	14.0	N	VS	66.0	5	66.0	3-1/4	S	102 S1W	92 O	193	S-Q	3
M 4-7		60.5	41.8	71	28	1	76.5	1.44	17.2	VS	61.1	.37	16.3	N	S	71.7	6	71.7	3-3/4	S	95 DG	95 S1O	195	S	4
MT 6610		60.5	45.0	83	16	1	77.1	1.45	15.8	VS	44.9	.39	15.4	S	U	70.3	6	70.3	4	S	100 S1W	96	206	S	1
MT 6661		58.0	46.7	78	21	1	76.9	1.30	15.8	S-Q	58.0	.37	15.7	N-S	Q	70.9	6	70.9	3-1/4	S	101 W	93 S1O	208	S	2
S 659		61.0	46.1	76	22	2	76.7	1.22	15.0	VS	61.8	.36	14.0	N	S	67.6	6	67.6	5	S	99 S1W	96	183	Q	2
S 6579		59.5	50.5	83	15	2	77.1	1.40	15.1	VS	62.8	.33	13.8	N	VS	68.8	6	68.8	5	S	100	95 S1O	195	Q	2
Wisc. 271		59.0	48.5	80	19	1	77.0	1.41	15.7	S	61.5	.40	15.2	N	S	70.9	6	70.9	3-1/4	S	100	97	193	S	4

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.
2/ 14% moisture basis
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft, V - Very.
5/ Refer to Reference Mixograms for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close, H - Harsh.
9/ 1 - No Promise, 2 - Little Promise, 3 - Some Promise, 4 - Good Promise.

TABLE 9

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Crookston, Minnesota

1968 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size Lg.	Kernel Size Med.	Kernel Size Sm.	Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/	Gen. Eval. 9/
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.		
Chris	13751	60.5	31.6	36	59	5	74.6	1.78	15.3	S	53.7	.51	14.8	N-S	S	65.7	4	65.7	3-1/2	S-M	100 W	88 O	200	S	
Justin	13462	58.5	32.3	43	53	2	75.1	1.78	15.5	S	56.4	.44	15.0	N-S	S	67.6	6	67.6	4-3/4	S	100 SlC	96	188	S	
Manitou	13775	59.5	31.2	35	59	6	74.5	1.75	15.3	S	56.6	.50	14.6	N-S	S	64.7	3	64.7	2-3/4	S-M	102 SlC	98	187	S-Q	
Marquis	3641	57.5	32.1	17	73	10	73.4	1.83	13.0	S-Q	53.3	.51	12.4	N-S	S	65.7	3	65.7	4-1/2	S-M	104 SlC	97 C	175	Q	
Polk	13773	60.5	38.3	36	55	9	74.4	1.71	13.7	S	58.9	.44	13.2	N-S	S	63.2	6	63.2	4-3/4	M-S	104 W	97 C	190	Q-U	
Red River 68		61.5	33.8	20	73	7	73.7	1.78	13.4	S	59.5	.47	13.5	N-S	S	67.3	9	67.3	8-3/4	B	102 SlC	90 O	190	U	
Thatcher	10003	58.5	27.0	7	83	10	72.9	1.74	14.0	S-Q	55.4	.52	13.2	N-S	S-Q	63.8	4	63.8	5-1/2	M-S	104 SlC	96	179	Q-U	
Waldron	13958	58.0	35.7	49	45	6	75.2	1.88	15.4	S	57.1	.46	14.7	N-S	S	67.3	5	67.3	4	S	106	90 O	201	S	
RL 4200		61.5	35.5	31	64	5	74.3	1.85	14.0	S	56.7	.51	13.4	N-S	S	65.0	3	65.0	3-1/4	S-M	101 SlC	98	181	S-Q	3
RL 4220		58.0	33.4	34	53	13	74.1	1.80	14.0	S	59.3	.45	13.4	N-S	S	65.7	4	65.7	3-3/4	S-M	95 DG	93 O	195	S	3
II-62-2		59.5	38.3	58	37	5	75.7	1.74	14.2	S	60.0	.41	13.6	N-S	VS	66.6	5	66.6	4	S-M	106 SlC	97	193	S	4
II-62-61		60.0	33.0	23	63	14	73.5	1.68	13.0	S	62.9	.41	12.1	N-S	VS	62.8	4	62.8	4-1/4	S-M	98 C	98	187	Q-U	2
II-62-68		62.5	33.3	31	63	6	74.3	1.74	13.7	S	59.4	.46	13.1	N-S	S	63.8	6	63.8	5-3/4	S	101 SlC	98	178	Q	2
K-48-44		59.5	31.6	37	57	6	74.6	1.85	13.5	S	58.5	.49	13.1	N	S	64.2	3	64.2	3-1/2	S-M	95 C	98	177	Q	2
ND 476		59.0	36.8	42	51	7	74.8	1.99	13.8	S	57.7	.54	13.2	N-S	Q	63.8	5	63.8	5-1/4	S-M	85 DG	90 SlOH	177	Q-U	1
ND 481		57.0	38.0	49	45	6	75.2	1.86	14.3	S-Q	56.2	.41	13.5	N-S	S	65.3	6	65.3	5-1/4	S	98 SlC	95 SlO	194	S	3
ND 482		59.0	34.2	58	37	5	75.7	1.87	14.3	S	57.6	.42	14.0	N-S	S	67.0	5	67.0	3-3/4	S	99 C	88 OH	191	Q	2
M 4-1		58.5	32.1	29	66	5	74.2	1.87	14.1	S	57.6	.43	13.5	N-S	S	65.7	6	65.7	5-1/2	S-M	100	98	180	S-Q	3
M 4-7		58.0	36.4	38	53	9	74.5	1.77	14.5	S	62.8	.41	14.2	N	VS	66.6	5	66.6	4-3/4	S-M	101	96	176	S-Q	3
MT 6610		58.0	35.1	29	61	10	74.0	1.83	13.3	S-Q	58.6	.47	13.0	N-S	S	64.2	4	64.2	4	S-M	104	95 SlI	180	Q	2
MT 6661		55.5	28.5	3	87	10	72.7	1.96	13.4	Q-U	52.9	.54	12.9	S-N	Q	63.2	4	63.2	3-3/4	M-S	101 BC	93 CH	170	U	1
S 659		60.0	41.5	56	37	7	75.5	1.63	13.1	S	55.0	.44	13.3	N	S	67.0	4	67.0	3-1/2	S-M	100 W	95 SlO	195	S	4
S 6579		59.5	39.8	48	43	9	75.0	1.69	14.1	S	57.1	.45	13.8	N-S	S	66.0	4	66.0	3-1/2	S	99 C	96	193	S	4
Wisc. 271		59.0	37.3	27	65	8	74.0	1.80	14.2	S	59.5	.39	13.6	N-S	VS	64.4	6	64.4	5-1/2	S-M	99 C	95 SlO	190	S-Q	3

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.
2/ 14% moisture basis
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft, V - Very.
5/ Refer to Reference Mixograms for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.
9/ 1 - No Promise, 2 - Little Promise, 3 - Some Promise, 4 - Good Promise.

TABLE 10

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Morris, Minnesota

1968 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size Lg.	Kernel Size Med.	Kernel Size Sm.	Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/	Gen. Eval. 9/
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.		
Chris	13751	63.0	29.4	9	89	2	73.4	1.62	12.1	S	64.5	.49	11.9	N	S	60.0	3	60.0	4	N-S	101	97	170	S	
Justin	13462	61.0	30.5	16	78	6	73.5	1.81	12.3	S	65.8	.53	11.7	N	S	60.3	3	60.3	4	M	100 SlC	96 H	161	S	
Manitou	13775	61.0	28.2	15	83	2	73.6	1.71	12.0	S	59.1	.51	11.0	N	Q	55.4	7	55.4	5	W SlD	102 SlC	95	160	U	
Marquis	3641	61.0	28.5	9	86	5	73.2	1.81	11.5	S-Q	58.0	.50	10.6	N	Q	56.3	8	56.3	5-1/4	M-S	102	96	161	Q-U	
Polk	13773	63.5	38.0	45	51	4	75.0	1.70	12.3	VS	60.5	.46	11.5	N	S	59.3	5	59.3	4-3/4	W-M SlD	105 W	97	191	Q	
Red River 68		63.0	35.1	17	83	0	75.9	1.65	11.5	S	59.9	.46	10.9	N-S	Q	60.7	11	60.7	7-3/4	S	105 SlC	90 O	160	Q	
Thatcher	10003	61.0	28.2	4	91	5	73.0	1.69	11.5	S	64.9	.56	10.9	N	Q	57.8	3	57.8	4	W-M SlD	100 SlC	95	166	Q-U	
Waldron	13958	62.5	36.8	49	50	1	75.4	1.80	12.8	S	64.7	.54	12.6	N	S	63.8	5	63.8	4-1/2	M-S	98 SlC	97	178	S	
RL 4200		62.0	34.2	8	91	1	73.4	1.67	11.9	S	57.6	.49	11.1	N	Q-U	58.7	5	58.7	5-1/4	W-M SlD	102 SlC	95	155	Q-U	1
RL 4220		61.0	34.5	8	89	3	73.3	1.64	11.3	S	60.5	.46	10.4	N-S	Q	60.7	6	60.2	6	W-M SlD	102 W	93	158	Q	2
II-62-2		62.5	40.4	55	44	1	75.7	1.65	12.1	VS	60.9	.48	11.2	N	Q	62.5	4	62.5	4-3/4	M	103 SlC	96	171	S	3
II-62-61		63.0	31.6	21	77	2	74.0	1.65	10.7	S	60.8	.48	9.5	N-S	Q	57.5	5	58.0	5-1/2	M	101 SlC	95	160	Q	2
II-62-68		62.5	30.1	8	89	3	73.3	1.71	11.9	S	66.0	.56	11.1	N	Q-S	60.7	4	60.7	4-1/2	M	100 C	96 HT	154	Q	2
K-48-44		61.5	34.1	9	89	2	73.4	1.70	11.7	S	58.0	.48	10.5	N	Q	56.7	5	56.7	5-1/4	M-W	100 SlC	97	158	U	1
ND 476		61.5	35.3	8	89	3	73.3	1.79	12.1	S	57.6	.53	10.7	N	Q	58.7	8	59.2	9	M-W	104	93 SlH	160	U	1
ND 481		60.5	38.6	46	51	3	75.2	1.74	11.6	S	60.5	.45	10.6	N-S	Q	60.3	8	60.3	7-3/4	M-S	105	93 SlI	169	Q-U	1
ND 482		61.5	36.4	33	64	3	74.5	1.84	12.1	S	60.5	.45	11.6	N-S	Q	61.0	7	61.0	6-1/2	M-S	105 W	96	180	Q	2
M 4-1		61.5	31.7	4	94	2	73.1	1.90	12.3	S	60.6	.47	11.6	N	Q-S	61.0	8	61.0	8-1/4	S-M	104	93 SlH	170	U	1
M 4-7		61.5	38.0	19	78	3	73.8	1.84	12.7	S	61.1	.43	11.8	N-S	Q	59.7	11	59.7	10-1/4	W SlD	106	93 SlI	164	U	1
MT 6610		61.0	32.6	12	85	3	73.5	1.72	11.6	S	57.3	.48	11.0	N-S	U	58.1	6	58.1	6	M	106	93 SlI	170	Q	1
MT 6661		59.5	36.5	13	82	5	73.4	1.79	11.5	S-Q	58.2	.52	10.5	N-S	U	59.0	5	59.0	5	M	100 C	92 SlT	166	S-Q	1
S 659		62.0	38.3	34	63	3	74.6	1.67	11.6	S	57.7	.45	11.1	N	U	61.9	6	61.9	6	M-S	104 W	90 O	180	Q	1
S 6579		61.5	37.5	37	61	2	74.8	1.70	11.7	S	59.0	.46	11.3	N-S	Q	60.0	6	60.0	7-1/4	M	102 SlC	91 O	178	Q	2
Wisc. 271		61.5	37.6	12	84	4	73.4	1.66	11.3	S	60.5	.44	10.4	N	Q	58.1	10	58.1	8-1/2	M	101 C	90 SlO	171	U	1

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.
2/ 14% moisture basis
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft, V - Very.
5/ Refer to Reference Mixograms for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.
9/ 1 - No Promise, 2 - Little Promise, 3 - Some Promise, 4 - Good Promise.

TABLE 11

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

St. Paul, Minnesota

1968 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/	Gen. Eval. 9/
				Lg.	Med.	Sm.																			
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.		
Chris	13751	59.5	32.3	29	69	2	74.4	1.91	16.9	S	55.5	.48	16.5	N	S	67.0	4	67.0	3-3/4	S	98 W	90 O	219	S	
Justin	13462	57.5	32.1	25	69	6	74.0	2.03	17.1	S	54.7	.51	16.3	N	S	67.9	7	67.9	6	S	100 C	92 O	218	S	
Manitou	13775	59.0	29.0	19	77	4	73.8	1.99	16.8	S	56.4	.49	16.1	S-N	Q	65.3	4	65.3	3-3/4	S	102 SlC	92	206	Q-S	
Marquis	3641	58.5	29.5	26	67	7	74.0	2.26	15.1	S	53.3	.69	14.9	S	U	64.7	4	64.7	4-1/4	S	95	98	196	U	
Polk	13773	59.5	34.7	41	55	4	74.9	2.04	16.0	S	56.2	.52	14.9	S-N	Q	66.0	6	66.0	5-1/2	S	98	90 O	205	Q	
Red River 68		59.0	30.3	5	88	7	72.9	1.95	15.3	S	51.9	.59	14.2	S-N	U	65.7	6	65.7	5-3/4	VS	100 SlC	96	195	U	
Thatcher	10003	58.0	24.3	3	85	12	72.6	2.02	14.9	Q	56.5	.60	14.3	S-N	U	64.4	5	64.4	4	S-M	100 C	98	182	U	
Waldron	13958	60.0	35.8	51	47	2	75.5	1.97	16.1	S	57.3	.49	14.9	N	S	66.0	5	66.0	4-1/4	S	103 SlC	92 SlO	196	Q	
RL 4200		58.5	29.5	23	73	4	74.0	2.14	17.1	S	54.0	.57	16.6	N-S	U	67.3	5	67.3	3-1/2	S	102 C	91 O	204	S-Q	1
RL 4220		58.5	31.5	37	59	4	74.7	1.95	15.6	S	56.4	.55	14.9	N-S	Q-U	65.7	5	65.7	4-1/4	S	103	96	197	Q	1
II-62-2		58.0	31.5	37	57	6	74.6	2.07	15.6	S	57.3	.47	14.7	N	S	64.4	5	64.4	4-3/4	S	101 C	91 O	194	U	1
II-62-61		59.5	31.5	35	58	7	74.4	1.93	15.0	S	55.6	.50	13.3	N-S	Q	61.9	5	61.9	4-3/4	S-M	98	96	178	U	1
II-62-68		59.5	26.2	17	73	10	73.4	2.26	16.7	S	57.5	.55	15.6	N-S	Q	64.4	6	64.4	6-1/4	S-M	96 C	96 H	183	U	1
K-48-44		59.5	30.0	33	65	2	74.6	2.02	16.6	S	55.2	.50	15.8	N-S	Q	65.3	4	65.3	3-3/4	S	100 C	97 SlO	195	Q-U	1
ND 476		57.5	31.5	37	57	6	74.6	2.13	16.1	S	54.0	.55	15.3	S-N	U	66.0	6	66.0	5-1/4	S	97	97	188	Q	1
ND 481		55.5	35.0	37	55	8	74.5	2.10	16.0	Q	55.7	.48	14.8	N-S	Q	65.3	7	65.3	6	S	103 SlC	97 SlO	209	Q-U	2
ND 482		59.0	34.4	64	33	3	76.1	2.08	16.9	S	56.2	.42	16.3	N-S	S-Q	67.0	6	67.0	5-1/2	S	103	97 SlO	200	S-Q	3
M 4-1		58.0	29.8	23	70	7	73.8	2.24	16.6	S	56.2	.50	16.0	N-S	S-Q	68.8	8	68.8	6-1/4	S	99	96 SlI	189	Q	3
M 4-7		57.5	33.3	30	63	7	74.2	2.18	16.3	S	59.0	.52	15.4	N-S	S-Q	67.0	8	67.0	9-1/4	S	94	97 SlO	190	S	3
MT 6610		57.0	31.6	25	68	7	73.9	2.12	15.6	S-Q	54.7	.56	14.8	S-N	U	65.7	5	65.7	4-3/4	S	99	95 SlI	201	Q	1
MT 6661		55.0	28.1	7	79	14	72.7	2.29	15.5	Q-U	53.8	.62	15.0	S	U	67.3	5	67.3	4	S-M	102 VC	96 T	194	Q	1
S 659		61.0	40.0	57	41	2	75.8	1.89	15.1	S	56.6	.49	15.0	N-S	S-Q	67.0	6	67.0	4-3/4	S-M	105	96 I	188	Q	3
S 6579		60.0	38.2	46	48	6	74.0	1.86	15.7	S	58.8	.46	15.3	N	VS	65.0	6	65.0	6	S-M	100	96	197	Q	2
Wisc. 271		57.0	32.7	25	67	8	73.9	2.13	15.7	S	58.3	.48	14.8	N-S	S-Q	66.0	8	66.0	9-1/2	S	100 VC	97 I	198	Q-U	1

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.
2/ 14% moisture basis
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft, V - Very.
5/ Refer to Reference Mixograms for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.
9/ 1 - No Promise, 2 - Little Promise, 3 - Some Promise, 4 - Good Promise.

TABLE 12

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Waseca, Minnesota

1968 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size Lg.	Kernel Size Med.	Kernel Size Sm.	Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/	Gen. Eval. 9/
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.		
Chris	13751	60.0	29.2	17	81	2	73.8	1.86	15.7	S	55.5	.52	14.9	N	S	65.3	3	65.3	3	S	98	85 O	219	S-Q	
Justin	13462	58.0	31.0	26	69	5	74.1	2.03	16.1	S	56.7	.51	15.2	N	S	67.0	7	67.0	5-1/4	S	102	90 O	203	S	
Manitou	13775	57.5	29.4	7	88	5	73.1	1.90	16.0	S-Q	55.0	.52	14.9	N	S	63.5	3	63.5	3	S	105 BC	90 I	196	Q	
Marquis	3641	57.0	30.9	8	82	10	72.9	2.03	14.0	Q-S	53.6	.56	13.0	N	Q-U	61.9	5	61.9	4-3/4	S-M	102	97	187	U	
Polk	13773	58.5	34.1	22	72	6	73.8	1.99	14.8	S	56.1	.49	13.8	N	S	62.3	3	62.3	4	S	101 W	93	218	Q	
Red River 68		59.0	31.0	3	91	6	72.9	1.89	15.5	S	54.5	.54	14.6	N-S	Q	66.6	9	66.6	8-1/4	B	95 DG	90 I	172	U	
Thatcher	10003	57.0	25.3	2	88	10	72.6	1.89	14.4	Q	55.2	.57	13.6	N	Q	63.8	5	63.8	4	S	101 C	92	199	Q	
Waldron	13958	58.0	33.3	44	52	4	75.0	2.01	16.0	S	55.0	.52	14.5	N	S	64.2	5	64.2	4-1/4	S	102 C	94	194	S-Q	
RL 4200		57.5	34.4	27	70	3	74.2	1.97	16.2	S	53.1	.56	15.2	N	Q-U	64.2	3	64.2	2-3/4	S-M	98 DC	96	191	Q-U	2
RL 4220		58.0	32.8	14	79	7	73.4	2.00	14.1	S	56.4	.54	13.2	N	Q-S	63.8	4	63.8	3-3/4	S-M	105	90 I	195	Q	2
II-62-2		56.0	34.6	9	84	7	73.1	1.93	14.7	Q	55.2	.52	13.9	S-N	S-Q	64.4	5	64.4	5	S-M	102 C	96	189	Q	2
II-62-61		55.5	34.7	3	83	14	72.5	1.99	14.2	Q	56.4	.53	13.4	N-S	S-Q	64.2	6	64.2	6-1/4	S	100 C	93	190	Q	2
II-62-68		58.0	35.6	4	87	9	72.8	1.95	14.6	S	58.0	.52	13.8	N	S	62.5	8	62.5	6-3/4	S-M	101 C	98	181	Q-U	1
K-48-44		57.0	35.3	28	69	3	74.3	1.94	15.8	S-Q	54.0	.53	14.7	N	Q	64.2	4	64.2	3-3/4	S	103	95	195	Q	2
ND 476		56.0	35.2	5	85	10	72.8	2.09	16.1	Q-S	52.1	.60	15.1	N	U	66.3	7	66.3	6	S	95	93 S1H	193	Q	1
ND 481		56.0	32.1	19	73	8	73.6	2.00	15.5	S-Q	55.7	.47	14.1	N	S	64.4	7	64.4	6	S	102 C	95	205	Q	2
ND 482		58.5	33.2	53	44	3	75.5	2.04	16.1	VS	57.3	.45	15.3	S	VS	66.3	7	66.3	5-1/4	S	103	90 I	212	S	4
M 4-1		57.5	30.5	27	68	5	74.1	1.99	15.6	S	54.5	.48	14.6	N	S	67.9	7	67.9	6	S-M	101	85 OI	190	Q	3
M 4-7		58.0	33.6	30	64	6	74.2	1.94	15.5	S	58.8	.45	14.5	N	VS	66.0	8	66.0	7	S-M	101	94	192	Q	3
MT 6610		57.0	31.0	14	77	9	73.3	1.91	14.2	S-Q	55.2	.52	13.5	S-N	Q	62.5	5	62.5	5-1/4	S-M	100	94	203	U-Q	1
MT 6661		54.5	29.7	11	81	8	73.2	2.05	14.8	Q	53.8	.55	14.1	S	U	63.8	5	63.8	4	S	98 CD	97	201	Q	1
S 659		59.5	36.6	50	47	3	75.4	1.76	13.8	VS	55.9	.50	13.8	N	S	64.7	5	64.7	4-1/4	S	100	94	197	S-Q	3
S 6579		58.5	40.3	52	42	6	75.3	1.80	15.2	VS	57.5	.49	14.8	N	S	64.7	5	64.7	4-3/4	S	98	94	209	S-Q	3
Wisc. 271		56.0	29.4	3	85	12	72.6	1.95	15.0	Q	55.0	.47	14.3	S	U	63.2	9	63.2	7-1/2	S	95	90 O	217	U	1

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.
2/ 14% moisture basis
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft, V - Very.
5/ Refer to Reference Mixograms for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.
9/ 1 - No Promise, 2 - Little Promise, 3 - Some Promise, 4 - Good Promise.

TABLE 13

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Bozeman, Montana

1968 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/	Gen. Eval. 9/
				Lg.	Med.	Sm.																			
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.		
Chris	13751	58.5	25.6	12	81	7	73.3	1.68	15.6	S	60.0	.45	15.3	N	S	67.6	5	67.6	3-1/2	S-M	98 C	96	167	S	
Justin	13462	57.5	27.5	11	83	6	73.3	1.84	16.4	S	59.5	.46	16.1	N	S	69.7	7	69.7	5-1/2	S	100 C	93 O	159	S	
Manitou	13775	58.0	25.5	7	87	6	73.1	1.70	15.8	S	60.0	.51	15.3	N	S-Q	65.3	5	65.3	4-1/4	S-M	102 C	95	177	S	
Marquis	3461	59.0	25.6	6	84	10	72.8	1.91	16.4	S	55.9	.52	16.1	N-S	U	69.4	6	69.4	4-3/4	S	101 C	90 OI	182	VS	
Polk	13773	61.0	32.9	21	73	6	73.8	1.68	15.4	S	60.5	.47	14.9	N	S	67.6	7	67.6	5-1/4	S	100 C	98	193	S	
Red River 68		62.5	33.7	18	79	3	73.8	1.50	13.9	S	61.0	.44	13.6	N-S	S-Q	67.0	9	67.0	10	B	95 DG	92 I	166	U	
Thatcher	10003	57.5	26.8	9	84	7	73.1	1.72	15.5	S	57.9	.49	15.1	N-S	Q	65.3	5	65.3	4	S	104 BC	98	172	Q	
Waldron	13958	57.5	31.0	25	71	4	74.1	1.77	15.5	S	59.0	.46	15.1	N	S	67.0	6	67.0	5	S	101 S1C	98 C	166	S	
RL 4200		58.5	28.8	11	83	6	73.3	1.65	15.5	S	59.5	.47	15.2	N	S	66.3	5	66.3	3-3/4	M-S	101 C	93 H	158	S-Q	3
RL 4220		58.0	28.7	12	82	6	73.3	1.64	14.4	S	59.7	.48	14.1	N	S	67.3	6	67.3	4-1/2	M	102 S1C	94	160	S	4
II-62-2		59.0	35.3	30	66	4	74.3	1.58	13.9	S	61.0	.45	13.1	N-S	S	66.3	5	66.3	4-1/4	M	100 C	96	174	S-Q	3
II-62-61		59.0	31.1	6	84	10	72.8	1.61	13.0	S	62.4	.47	12.4	N	S	66.0	5	66.0	4-1/4	M	103 C	98	179	S-Q	3
II-62-68		60.5	31.2	8	87	5	73.2	1.55	13.9	S	62.6	.44	13.2	N	VS	66.0	6	66.0	4-3/4	M-S	95 DC	98	170	S-Q	3
K-48-44		57.0	31.7	5	87	8	72.9	1.71	15.6	S	59.2	.45	14.1	N	S	66.0	6	66.0	4-1/2	M-S	100 C	97 C	158	Q	2
ND 476		58.0	34.7	3	85	12	72.6	1.80	15.1	S	58.1	.50	13.9	N	Q	68.2	7	68.2	5-3/4	S-M	99 S1C	95 O	172	S	3
ND 481		56.5	37.2	7	85	8	73.0	1.70	14.5	S-Q	60.0	.43	13.6	N	S	68.5	7	68.5	6-1/4	S-M	104 S1C	85 O	186	Q	2
ND 482		57.5	28.0	12	78	10	73.1	1.82	15.3	S	57.1	.45	15.3	N-S	Q	70.0	8	70.0	7	S	102 C	95 O	165	Q	2
M 4-1		58.5	27.5	10	82	8	73.1	1.85	15.9	S	55.9	.45	15.4	N	Q	69.7	7	69.7	6	S	100 S1C	93 O	170	Q	3
M 4-7		56.5	29.2	9	84	7	73.1	1.85	16.0	S-Q	59.2	.42	15.4	N	S	69.4	8	69.4	7-3/4	S	100 S1C	97 C	162	Q	2
MT 6610		58.0	27.7	10	84	6	73.2	1.64	15.1	S	57.8	.42	14.7	N	Q	67.6	6	67.6	4-1/2	M	100 S1C	94	179	S	3
MT 6661		55.5	29.2	11	83	6	73.3	1.62	15.3	Q	57.4	.44	14.4	N-S	Q	67.3	7	67.3	7	S-M	101 C	88 O	168	Q	2
S 659		61.0	30.7	19	77	4	73.8	1.58	14.4	S	58.6	.42	14.1	N-S	Q	69.4	7	69.4	5-1/2	S	98 S1C	95 S1O	181	S	3
S 6579		59.5	32.3	18	77	5	73.7	1.61	14.7	S	60.3	.44	14.1	N	S	67.9	7	67.9	6-1/4	M	102 S1C	88 O	175	Q	2
Wisc. 271		57.0	26.6	1	83	16	72.3	1.60	15.4	S-Q	60.0	.43	14.4	N-S	S-Q	66.6	9	66.6	9-3/4	M-S	100 S1C	90 O	183	Q-U	1

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.
2/ 14% moisture basis
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft, V - Very.
5/ Refer to Reference Mixograms for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.
9/ 1 - No Promise, 2 - Little Promise, 3 - Some Promise, 4 - Good Promise.

TABLE 14

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Havre, Montana

1968 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/	Gen. Eval. 9/
				Lg.	Med.	Sm.																			
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.		
Chris	13751	56.0	20.7	1	83	16	72.3	1.62	15.5	S	61.3	.50	15.0	N	Q	66.0	6	66.0	4-3/4	S-M	100	95 SlO	190	S	
Justin	13462	57.0	25.1	3	87	10	72.7	1.59	15.8	S	62.3	.42	15.3	N	S	67.6	6	67.6	5-3/4	S	100	97	183	S	
Manitou	13775	55.5	23.1	1	84	15	72.3	1.57	15.4	S	61.6	.44	14.8	N	S	65.0	5	65.0	4-1/2	S	98 SlC	96 SlO	203	Q	
Marquis	3461	58.0	30.3	0	89	11	72.5	1.58	15.5	S	59.0	.45	14.7	N	S	66.0	5	66.0	3-1/2	S	98	88 O	210	S-Q	
Polk	13773	58.0	32.1	3	91	6	72.9	1.48	15.1	S	61.6	.43	14.5	N	S	64.2	5	64.2	5	S	105	95	202	Q	
Red River 68		58.0	31.3	2	91	7	72.8	1.53	16.1	S	61.8	.47	15.7	N	S	67.9	10	67.9	11-1/4	B	95	93	185	U	
Thatcher	10003	56.0	24.3	0	85	15	72.3	1.49	15.4	S	59.7	.46	14.6	N	S	62.5	5	62.5	4	S	105 SlC	96	202	Q	
Waldron	13958	54.5	26.9	3	92	5	72.9	1.47	16.1	S-Q	59.2	.40	15.5	N	S	66.6	6	66.6	5	S	100	80 O	239	S-Q	
RL 4200		56.5	25.3	0	90	10	72.5	1.54	15.2	S	59.9	.41	15.0	N	S	64.2	4	64.2	4	S	100 C	92	188	Q	2
RL 4220		56.0	24.6	0	87	13	72.4	1.44	14.2	S	60.2	.43	13.7	N	S	64.4	4	64.4	4-1/4	S-M	100	95	196	Q	2
II-62-2		57.0	28.2	3	88	9	72.7	1.57	15.2	S	61.1	.47	15.9	N	S	68.2	6	68.2	5-1/4	S	95	92	204	S	4
II-62-61		58.0	27.9	2	86	12	72.5	1.47	13.1	S	61.6	.46	12.7	N	S	62.5	7	62.5	5-3/4	S-M	100 SlC	95	198	Q	2
II-62-68		57.5	24.4	0	88	12	71.9	1.50	15.2	S	63.7	.46	15.0	N	S	63.2	6	63.2	5-1/2	S-M	100 SlC	97	189	Q	2
K-48-44		57.0	28.3	1	90	9	72.6	1.45	14.9	S	61.1	.43	14.6	N	S	61.9	5	61.9	4	S	103 SlC	96	185	U	1
ND 476		55.5	28.1	1	82	17	72.2	1.49	14.5	S	61.1	.44	13.8	N	S	63.2	7	63.2	6-1/4	S-M	98 SlC	93 O	191	Q-U	2
ND 481		56.0	31.9	6	87	7	73.0	1.53	14.0	S	62.6	.37	13.0	N	VS	63.2	6	63.2	5-1/4	S-M	103	93	205	Q	2
ND 482		56.5	25.9	1	88	11	72.5	1.55	15.2	S	62.0	.41	15.1	N	S	66.3	7	66.3	6	S	100 SlC	95	190	S	3
M 4-1		56.5	24.3	0	87	13	72.4	1.70	16.4	S	60.4	.44	15.9	N	S	66.3	6	66.3	5	S	92 DC	92 O	183	S	3
M 4-7		56.0	29.2	2	90	8	72.7	1.65	15.8	S	62.6	.41	15.5	N	S	65.7	7	65.7	6-1/4	S	96	95	188	S-Q	3
MT 6610		55.0	28.9	1	88	11	72.5	1.53	15.5	S-Q	58.0	.45	15.3	N-S	Q	65.0	6	65.0	5	S	90 D	88 IO	212	Q	2
MT 6661		54.0	31.4	2	88	10	72.6	1.62	16.6	Q	59.4	.43	16.3	N-S	S-Q	67.0	6	67.0	5-1/4	S	100 SlC	90 O	204	S	3
S 659		58.5	31.9	2	91	7	72.8	1.39	14.3	S	59.7	.38	14.1	N	S	65.3	6	65.3	5	S-M	101	91 O	203	Q	3
S 6579		57.0	28.5	2	90	8	72.7	1.39	13.9	S	59.9	.39	13.5	N	S	63.5	6	63.5	5-1/2	M-S	103 SlC	95	185	Q	2
Wisc. 271		55.0	25.3	0	84	16	72.2	1.52	14.9	S	59.9	.39	14.2	N	S	62.8	8	62.8	6	S	98 SlC	96	193	Q	2

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.
2/ 14% moisture basis
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft, V - Very.
5/ Refer to Reference Mixograms for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.
9/ 1 - No Promise, 2 - Little Promise, 3 - Some Promise, 4 - Good Promise.

TABLE 15

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Sidney, Montana

1968 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size Lg.	Kernel Size Med.	Kernel Size Sm.	Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/	Gen. Eval. 9/
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.		
Chris	13751	59.0	23.4	0	95	5	72.8	1.54	17.6	S	63.5	.50	17.4	N	S	68.5	5	68.5	4-1/4	S	100 SlC	95 O	181	S	
Justin	13462	57.5	26.2	2	92	6	72.8	1.70	17.6	S	60.8	1.11*	17.2	N	Q*	69.4	6	69.4	5-1/4	S	70 G*	90 O	194	Q*	
Manitou	13775	58.0	23.3	0	95	5	72.8	1.62	17.4	S	61.7	.51	17.0	N	S	67.0	5	67.0	4	S	97 C	85 OH	182	Q	
Marquis	3641	60.0	24.6	0	93	7	72.7	1.81	17.6	S	58.9	.54	17.0	N	Q	67.6	5	67.6	4-1/2	S	98 SlC	80 OI	195	Q	
Polk	13773	61.5	31.6	5	93	2	73.2	1.56	17.1	S	62.0	.48	16.7	N	S	68.2	7	68.2	6-1/2	S	98 SlC	85 OI	210	S-Q	
Red River 68		60.5	25.6	0	91	9	72.6	1.55	17.0	S	61.5	.51	16.6	N	S	70.9	11	70.9	19-3/4	B	95 SlC	80 OI	192	U	
Thatcher	10003	58.0	22.0	0	91	9	72.6	1.73	17.9	S	63.7	.55	17.5	N	S-Q	69.1	5	69.1	4	S-M	93 C	95	187	S	
Waldron	13958	56.5	26.2	1	95	4	72.9	1.75	18.6	S	59.8	.53	16.9	N	Q	69.7	8	69.7	6-1/2	S	97	94 SlO	198	Q	
RL 4200		59.0	25.2	0	96	4	72.8	1.53	17.3	S	59.3	.50	16.6	N	Q-S	66.0	4	66.0	2-3/4	S-M	95 C	93 SlO	185	Q	2
RL 4220		58.0	24.5	1	93	6	72.8	1.60	16.8	S	60.1	.52	16.6	N	S-Q	69.7	6	69.7	5-1/2	S	98	93 O	192	S	3
II-62-2		57.5	27.4	2	92	6	72.8	1.64	16.7	S	60.1	.48	16.5	N	S	67.0	6	67.0	5-1/2	S	100 C	85 O	193	S-Q	3
II-62-61		58.0	23.2	0	88	12	72.4	1.64	16.3	S	62.3	.48	16.0	N	S	66.0	7	66.0	6-3/4	S	98 SlC	95 O	201	Q	2
II-62-68		59.5	22.7	1	92	7	72.7	1.64	17.4	S	63.2	.45	16.3	N	VS	63.5	4	63.5	3-3/4	S	98 C	95 SlO	195	Q	2
K-48-44		58.0	23.9	0	95	5	72.8	1.57	17.2	S	58.9	.48	16.9	N	Q-S	66.6	5	66.6	4-1/4	S-M	95 SlC	90 OH	176	Q	2
ND 476		58.0	23.8	0	91	9	72.6	1.95	17.3	S	57.9	.53	16.5	N	Q	69.1	7	69.1	6-1/2	S-M	95	95	184	Q	2
ND 481		56.0	27.6	2	90	8	72.7	1.63	17.1	S-Q	60.4	.45	16.3	N	S	69.7	7	69.7	7	S	100 SlC	85 OH	225	Q	2
ND 482		59.0	26.1	2	92	6	72.8	1.63	17.1	S	61.5	.43	16.9	N	VS	69.1	7	69.1	7	S	98	95 SlH	201	Q	2
M 4-1		59.5	26.1	1	93	6	72.8	1.68	18.1	S	58.9	.48	17.2	N	Q	69.4	6	69.4	5	S	90 SlC	85 OH	200	S-Q	3
M 4-7		58.5	29.0	4	92	4	73.0	1.67	18.3	S	63.4	.48	17.4	N	S	69.7	5	69.7	4-3/4	S-M	93	97	209	S	4
MT 6610		57.5	23.9	0	91	9	72.6	1.60	16.8	S	57.2	.47	16.6	N	Q	67.0	7	67.0	6-1/2	S	98 C	95 O	210	S-Q	3
MT 6661		56.5	26.4	0	93	7	72.7	1.66	17.9	Q-S	54.5	.51	17.3	N-S	U	69.1	7	69.1	7-1/2	S	95 SlC	88 OH	206	Q	1
S 659		61.0	28.2	1	95	4	72.9	1.47	17.1	S	58.9	.41	16.9	N	Q	67.9	6	67.9	5-3/4	S	100	85 OH	210	Q	2
S 6579		58.0	30.1	2	95	3	73.0	1.43	17.1	S	61.1	.43	16.8	N	S	67.6	7	67.6	6-3/4	S	98 C	85 O	203	Q	3
Wisc. 271		58.5	24.4	0	89	11	72.5	1.61	17.9	S	60.2	.47	17.4	N	S	69.1	8	69.1	7-1/2	S	93 C	88 O	196	Q	3

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.
2/ 14% moisture basis
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft, V - Very.
5/ Refer to Reference Mixograms for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.
9/ 1 - No Promise, 2 - Little Promise, 3 - Some Promise, 4 - Good Promise.

* Inseparable stones

TABLE 16

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Dickinson, North Dakota

1968 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/	Gen. Eval. 9/
				Lg.	Med.	Sm.																			
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.		
Chris	13751	59.5	33.6	63	36	1	76.1	1.50	16.6	S	43.7	.47	15.0	N-S	S-Q	63.8	5	63.8	5	S	90	90 O	169	S-Q	
Justin	13462	60.5	35.3	74	25	1	76.7	1.63	16.8	S	51.0	.48	15.9	N-S	S-Q	66.0	6	66.0	4-1/2	S	96	93	180	S	
Manitou	13775	60.5	33.2	58	41	1	75.9	1.60	17.1	S	52.2	.50	16.3	N-S	Q-S	64.2	3	64.2	2-1/2	S-M	95 SlC	90 O	182	Q-S	
Marquis	3461	59.5	33.8	45	54	1	75.2	1.73	16.3	S	57.8	.50	15.8	N-S	S-Q	65.0	4	65.0	3-1/2	M-S	97 C	93 O	186	S	
Polk	13773	62.0	40.5	79	20	1	76.9	1.61	15.9	S	53.5	.49	15.6	N-S	S-Q	65.0	7	65.0	5-3/4	S	97	96	185	S	
Red River 68		62.5	35.6	36	64	0	74.9	1.58	16.8	S-Q	56.0	.50	16.4	N-S	S-Q	69.1	8	69.1	9	SlB	90	90 O	185	U	
Thatcher	10003	61.0	30.8	28	71	1	74.4	1.72	16.8	S-Q	63.6	.60	16.6	N	U	65.7	3	65.7	2-1/4	M-W	93	93	177	U	
Waldron	13958	59.5	37.5	80	19	1	77.0	1.74	16.8	S	54.5	.49	16.1	N-S	S-Q	64.2	4	64.2	3	S	95	90 O	197	S	
RL 4200		61.0	33.3	54	46	0	75.7	1.64	17.6	S	50.5	.48	16.7	N-S	S-Q	64.2	2	64.2	2	S-M	97 C	88 O	170	U	1
RL 4220		61.5	35.6	54	46	0	75.7	1.51	16.0	S	54.0	.47	15.2	N-S	S-Q	64.4	4	64.4	3-1/4	S	100	96	191	S	3
II-62-2		60.0	39.4	75	25	0	76.8	1.53	15.5	S	52.5	.46	14.4	N-S	S-Q	62.5	5	62.5	5-1/4	S-M	95 SlC	95	176	Q	2
II-62-61		62.0	35.1	58	42	0	75.9	1.59	14.5	S	55.5	.44	13.4	N-S	S-Q	59.7	5	59.7	4-1/2	S-M	93	90 O	184	Q	2
II-62-68		62.0	32.2	52	48	0	75.6	1.53	15.8	S	67.2	.54	15.6	N	Q	66.0	5	66.0	5-1/4	M-S	88 DC	90 C	172	S-Q	3
K-48-44		60.5	32.1	50	50	0	75.5	1.63	17.2	S	51.0	.46	16.0	N-S	S-Q	63.2	3	63.2	2-1/4	S	97 SlC	93	180	Q	1
ND 476		62.0	36.6	64	36	0	76.2	1.55	14.9	S	53.2	.45	14.0	N-S	S-Q	61.9	6	61.9	4-3/4	M	98	96	177	Q-U	1
ND 481		61.0	42.0	80	20	0	77.0	1.66	15.6	S	52.8	.43	14.3	N-S	S-Q	65.7	5	65.7	4-1/2	S-M	98	85 O	218	Q	2
ND 482		59.5	39.7	86	14	0	77.3	1.54	16.7	S	52.3	.43	16.5	N-S	S	68.2	6	68.2	5	S	96	90 O	192	S	4
M 4-1		61.5	36.8	72	28	0	76.6	1.64	16.4	S	48.3	.44	15.9	N-S	S-Q	67.3	6	67.3	5-3/4	S	96	88 O	174	S-Q	3
M 4-7		61.5	38.5	76	23	1	76.8	1.58	17.1	S	52.0	.40	16.1	N-S	S	67.6	7	67.6	6-1/2	S-M	98	90	157	Q	2
MT 6610		61.5	35.8	56	43	1	75.8	1.47	16.4	S	52.0	.41	15.8	N-S	S	64.4	5	64.4	3-3/4	S	98	90 O	216	S-Q	3
MT 6661		61.0	37.2	48	51	1	75.4	1.69	15.8	S	51.0	.47	14.9	N-S	S-Q	63.8	5	63.8	4	S	97 SlC	93	193	S	3
S 659		59.5	39.8	74	26	0	76.7	1.43	16.1	S	49.5	.45	15.9	N-S	S-Q	66.6	4	66.6	3-1/4	S	100 W	90 O	198	S-Q	3
S 6579		60.5	42.2	75	25	0	76.8	1.45	16.5	S	50.0	.45	15.9	N-S	S-Q	64.7	5	64.7	4-1/2	S-M	97	95	181	S	3
Wisc. 271		62.0	35.6	44	56	0	75.2	1.60	16.2	S	63.5	.48	16.0	N	S	67.3	5	67.3	4	M-S	90 C	98	185	S	4

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.
2/ 14% moisture basis
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft, V - Very.
5/ Refer to Reference Mixograms for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.
9/ 1 - No Promise, 2 - Little Promise, 3 - Some Promise, 4 - Good Promise.

TABLE 17

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Fargo, North Dakota

1968 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/	Gen. Eval. 9/
				Lg.	Med.	Sm.																			
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.		
Chris	13751	62.5	28.7	7	91	2	73.3	1.72	16.3	S	55.1	.46	15.7	N	S	64.4	3	64.4	3	S	102 SlC	95 O	195	S	
Justin	13462	61.5	32.4	37	62	1	74.8	1.77	15.5	S	57.5	.41	14.7	N	S	65.0	5	65.0	4-3/4	S	98	96 SlOI	189	S	
Manitou	13775	61.5	28.1	7	91	2	73.3	1.81	15.8	S	57.7	.49	15.1	N	S-Q	64.2	4	64.2	3	S	105 SlC	93 O	202	S	
Marquis	3641	62.5	28.7	5	93	2	73.2	1.75	14.4	S-Q	56.1	.45	12.4	N	S	63.2	2	63.2	2-1/4	M-W	98	98	170	Q	
Polk	13773	64.0	37.5	51	49	0	75.6	1.61	14.5	S	57.3	.43	13.8	N	S	64.2	4	64.2	3-3/4	S	105	97	202	S	
Red River 68		63.5	33.8	6	93	1	73.3	1.61	14.4	S	57.1	.43	13.9	N	S	66.6	9	66.6	11-1/4	B	96 SC	89 O	171	U	
Thatcher	10003	60.5	25.4	0	96	4	72.8	1.71	13.4	Q	61.7	.51	13.2	N	Q	62.5	3	62.5	3-3/4	M-S	95 C	98	165	Q-U	
Waldron	13958	62.0	35.0	55	44	1	75.7	1.74	15.2	S	56.3	.45	14.2	N	S	63.8	4	63.8	4	S	110	97 SlO	197	S	
RL 4200		62.0	32.8	20	79	1	74.0	1.64	15.8	S	55.5	.47	15.1	N	S	63.8	3	63.8	2-1/4	S-M	105 SlC	95 O	182	S-Q	3
RL 4220		62.5	31.5	24	75	1	74.2	1.60	14.7	S	57.1	.45	13.8	N	S	63.8	4	63.8	3-1/2	S	90	94 O	202	S-Q	3
II-62-2		62.0	36.6	55	43	2	75.7	1.70	14.7	S	57.5	.41	13.5	N	S	62.5	3	62.5	3-1/4	S	98	97	192	Q	2
II-62-61		64.0	33.7	34	65	1	74.7	1.59	13.2	S-Q	59.6	.41	12.2	N	S	60.7	4	60.7	3-3/4	S	100	95	187	Q	2
II-62-68		62.0	27.8	6	91	3	73.2	1.58	14.1	S-Q	57.9	.42	12.9	N	S	61.3	6	61.3	5-3/4	S-M	102 C	90 C	166	U	2
K-48-44		62.0	31.3	27	71	2	74.3	1.60	15.6	S	55.6	.44	14.2	N	S	62.3	2	62.3	2-3/4	S	98	90 O	188	Q	2
ND 476		62.5	33.3	40	57	3	74.9	1.58	14.1	S-Q	55.2	.44	12.9	N	S	62.8	5	62.8	4-3/4	M-S	95 SlC	95	167	U	1
ND 481		61.0	36.0	49	49	2	75.2	1.66	14.6	S	57.1	.37	13.0	N	VS	65.0	5	65.0	4-3/4	S	100 SlC	97 SlO	190	S	4
ND 482		61.5	33.8	61	38	1	76.0	1.67	15.6	S	56.4	.40	14.9	N	S	66.3	5	66.3	4	S	110 SlC	85 O	182	Q-S	3
M 4-1		62.0	31.8	25	73	2	74.2	1.68	15.0	S	56.9	.40	14.2	N	S	66.3	6	66.3	5	S	98	88 O	174	Q	2
M 4-7		62.5	34.5	49	50	1	75.4	1.64	15.2	S	57.0	.37	14.2	N	VS	65.7	6	65.7	6-1/4	S	98	80 O	179	Q	2
MT 6610		62.0	32.8	29	69	2	74.4	1.59	14.6	S	56.3	.42	13.7	N	S	63.2	5	63.2	4-1/4	S-M	105	95	217	S	3
MT 6661		57.5	26.7	3	93	4	73.0	1.77	13.6	Q	55.0	.51	13.0	N	U	62.8	5	62.8	4-1/2	S-M	100 C	99 C	179	Q	1
S 659		63.0	37.7	61	37	2	76.0	1.53	14.5	S	55.7	.40	13.9	N	S	64.4	4	64.4	3-1/4	M-S	100	90 O	180	S	3
S 6579		62.0	39.2	63	35	2	76.1	1.59	14.4	S	57.3	.41	13.9	N	S	64.4	5	64.4	5	S-M	110	98	186	S	4
Wisc. 271		62.0	31.9	9	88	3	73.3	1.54	14.2	S	59.2	.40	13.4	N	S	63.5	6	63.5	6	M-S	95	91 SlI	193	Q-U	2

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.
2/ 14% moisture basis
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft, V - Very.
5/ Refer to Reference Mixograms for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.
9/ 1 - No Promise, 2 - Little Promise, 3 - Some Promise, 4 - Good Promise.

TABLE 18

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Langdon, North Dakota

1968 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size Lg.	Kernel Size Med.	Kernel Size Sm.	Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/	Gen. Eval. 9/
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.		
Chris	13751	58.5	27.9	17	79	4	73.7	1.81	15.4	S	50.0	.47	14.9	N-S	S	66.6	4	66.6	3	S-M	95 DC	95 S1H	178	S	
Justin	13462	56.0	29.0	19	77	4	73.8	1.94	15.3	S	49.8	.48	14.6	N-S	S	66.0	5	66.0	4	S-M	98 C	95 S1H	176	S	
Manitou	13775	59.5	31.0	30	69	1	74.5	1.76	15.2	S	53.6	.51	14.3	N-S	S-Q	65.0	4	65.0	3	M-S	95 DC	95 S1H	173	S	
Marquis	3461	57.0	29.8	11	84	5	73.3	1.94	14.3	S	49.5	.49	13.1	N-S	S	65.0	3	65.0	2-1/4	W	93 DC	85 S	161	U	
Polk	13773	60.5	36.9	45	53	2	75.2	1.72	13.7	VS	52.9	.47	13.0	N-S	S	64.2	5	64.2	4	M	100	95	186	S-Q	
Red River 68		58.5	34.2	10	87	3	73.4	1.79	14.4	S	53.8	.49	13.6	N-S	S	65.0	10	65.0	8-1/4	B	93	90 O S1H	189	U	
Thatcher	10003	56.0	24.8	5	89	6	73.0	1.80	13.4	Q	50.7	.54	12.7	S-N	Q	63.5	4	63.5	3-1/2	W	95 DC	90 H	172	U	
Waldron	13958	58.0	34.8	59	39	2	75.9	1.83	14.6	S	53.1	.49	13.5	N-S	S	63.5	4	63.5	3-1/2	M	98 C	95 S1H	170	Q	
RL 4200		59.0	33.7	52	47	1	75.6	1.78	15.4	VS	51.7	.49	14.3	N-S	S	64.2	4	64.2	3-1/4	M-S	95 DC	93 S1H	180	Q	2
RL 4220		59.0	33.8	35	63	2	74.7	1.92	14.6	S	54.3	.46	13.7	N-S	S	64.2	5	64.2	3-3/4	S-M	98	94 S1H	182	S-Q	3
II-62-2		57.5	30.3	23	75	2	74.1	1.71	13.9	S	55.0	.48	12.8	N-S	S	62.8	5	62.8	4-1/2	M-S	94 DC	95	191	Q	2
II-62-61		58.0	27.8	9	87	4	73.3	1.78	12.7	S-Q	54.8	.53	11.6	N-S	Q	61.0	4	61.0	4-1/2	M	90 DG	95 S1H	175	Q	1
II-62-68		58.0	31.5	3	91	6	72.9	1.85	14.0	S	54.5	.52	13.3	N-S	Q-S	64.2	6	64.2	5-3/4	M	93 DC	96 S1H	171	S-Q	2
K-48-44		58.0	35.3	51	47	2	75.5	1.90	14.9	VS	54.5	.53	13.9	N-S	Q-S	63.2	4	63.2	4	M-W	90 DC	94 H	170	Q	1
ND 476		56.0	29.0	10	86	4	73.3	1.93	14.4	S	48.3	.55	13.3	S-N	Q	62.5	5	63.5	5-1/2	W-M	85 VDC	80 S	147	U	1
ND 481		55.0	33.1	12	84	4	73.4	1.91	14.4	Q	49.0	.45	13.3	S-N	Q	63.2	5	63.2	4-1/2	M	95 DC	95 S1H	176	Q	2
ND 482		59.5	35.6	64	35	1	76.2	1.90	15.2	VS	51.4	.45	14.9	N-S	S	67.0	6	67.0	6	S-M	100	96	176	S-Q	3
M 4-1		59.0	38.8	35	64	1	74.7	1.88	15.2	S	51.2	.44	14.0	N-S	S	63.8	6	63.8	6-1/2	M-S	98 S1C	95 S1H	173	Q	2
M 4-7		58.5	35.6	37	61	2	74.8	1.86	14.9	S	53.8	.42	14.1	N-S	S	64.4	5	64.4	5-1/2	S-M	101	90 H	163	Q	2
MT 6610		60.5	38.5	47	50	3	75.2	1.65	13.7	VS	52.6	.45	13.2	N-S	VS	63.8	5	63.8	5-1/4	S-M	102 C	95	188	Q	2
MT 6661		56.0	35.1	29	67	4	74.3	1.82	13.5	S	53.1	.51	12.5	N-S	S	61.6	5	61.6	4-3/4	M	92 DC	93 H	175	Q	2
S 659		60.5	37.9	64	34	2	76.1	1.62	13.3	VS	54.1	.43	13.0	N-S	VS	65.7	6	65.7	5-1/2	M	101	96	172	S	3
S 6579		59.5	40.7	66	32	2	76.2	1.63	14.7	VS	57.7	.44	13.7	N-S	VS	64.7	6	64.7	5-3/4	M	99 S1C	93 O	185	S-Q	3
Wisc. 271		58.5	37.9	32	64	4	74.4	1.64	13.8	S	56.5	.40	12.5	N-S	VS	61.3	7	61.3	7	M	98 S1C	94	169	U	1

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.
2/ 14% moisture basis
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft, V - Very.
5/ Refer to Reference Mixograms for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.
9/ 1 - No Promise, 2 - Little Promise, 3 - Some Promise, 4 - Good Promise.

TABLE 19

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Minot, North Dakota

1968 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size Lg.	Kernel Size Med.	Kernel Size Sm.	Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/	Gen. Eval. 9/
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.		
Chris	13751	62.0	26.6	1	95	4	72.9	1.36	15.9	S	62.9	.53	15.8	N	S	67.3	5	67.3	3-3/4	S-M	95 S1C	98	188	S	
Justin	13462	61.5	31.7	13	86	1	73.6	1.49	16.1	S	56.1	.43	15.5	N	S-Q	66.0	8	66.0	7-1/2	S	105 S1C	85 O	178	S-Q	
Manitou	13775	60.5	28.2	2	95	3	73.0	1.42	15.6	S	59.2	.41	15.2	N	S	63.5	5	63.5	4-1/4	S	110 S1C	82 O	189	Q	
Marquis	3641	62.5	31.8	7	91	2	73.3	1.35	15.4	S	56.9	.40	14.5	N	S-Q	63.5	3	63.5	3	S	105	98	182	S-Q	
Polk	13773	63.5	38.2	45	53	2	75.2	1.47	15.3	VS	57.8	.43	14.7	N	S-Q	64.2	6	64.2	5-1/4	S	105	80 O	211	S-Q	
Red River 68		62.5	30.0	1	97	2	73.0	1.44	15.2	S	57.3	.48	14.8	N	S-Q	67.9	10	67.9	15	B	100	82 IO	175	U	
Thatcher	10003	57.0	23.6	0	93	7	72.7	1.47	16.2	Q	63.2	.46	16.0	N	S	68.2	5	68.2	4-3/4	M-S	100 C	96	187	S	
Waldron	13958	61.0	34.4	40	58	2	74.9	1.48	15.8	S	56.1	.42	15.4	N	Q	67.0	7	67.0	6-3/4	S	100	93	189	S	
RL 4200		59.0	28.7	1	97	2	73.0	1.41	16.2	S-Q	58.8	.40	16.0	N	S	66.0	4	66.0	4-1/4	S	105 C	82 I	177	S-Q	3
RL 4220		59.5	29.8	3	93	4	73.0	1.32	15.2	S	58.1	.45	14.6	N	S	67.9	6	67.9	6-1/4	S-M	105	85	186	S	3
II-62-2		63.0	34.6	36	63	1	74.8	1.30	14.8	S	59.4	.42	14.4	N	S	66.3	5	66.3	4-1/2	S	90 S1C	95	185	S	3
II-62-61		61.5	28.7	1	95	4	72.9	1.35	14.4	S	60.5	.45	13.8	N	S	66.0	6	66.0	8-1/4	S-M	85 S1C	98	178	Q	2
II-62-68		62.5	27.5	3	94	3	73.0	1.40	15.3	S	59.6	.42	14.6	N	S	65.7	8	65.7	10	M-S	90 C	93	161	Q	2
K-48-44		61.0	29.2	6	91	3	73.2	1.43	15.2	S	59.8	.39	14.8	N	S	65.0	5	65.0	4-1/4	S	105 C	95 O S1H	180	S-Q	2
ND 476		59.5	28.0	1	95	4	72.9	1.40	15.3	S-Q	59.7	.45	15.0	N	S	67.0	7	67.0	7-3/4	S	90 S1C	85 H	181	S	3
ND 481		60.0	35.3	22	75	3	74	1.36	15.2	S	60.7	.41	14.3	N	VS	67.0	6	67.0	6-3/4	S	110 S1C	80 OH	202	S-Q	3
ND 482		61.0	30.8	20	78	2	73.9	1.42	15.9	S	59.7	.39	15.6	N	VS	68.5	7	68.5	9-1/4	S	100 S1C	95	167	Q	2
M 4-1		61.5	31.2	4	94	2	73.1	1.42	16.2	S	59.0	.39	16.0	N	S	68.8	8	68.8	9	S	95 S1C	98	172	Q	2
M 4-7		61.0	34.8	12	86	2	73.6	1.51	16.3	S	59.4	.38	16.0	N	VS	67.9	9	67.9	9-1/4	S	100	90 I	171	Q	2
MT 6610		60.5	32.2	4	93	3	73.1	1.33	15.3	S	57.1	.43	14.9	N-S	Q	65.7	6	65.7	6-3/4	S-M	105	85 OI	183	S	3
MT 6661		57.0	28.6	1	95	4	72.9	1.46	16.1	Q	56.9	.47	15.6	N-S	Q	67.9	7	67.9	7-1/4	S	90 C	95 S1I	194	S	3
S 659		62.0	34.4	12	87	1	73.6	1.26	14.7	S	58.0	.38	14.5	N	S	67.6	6	67.6	6	S	105	90 I	210	S	4
S 6579		61.0	35.3	9	89	2	73.4	1.33	15.1	S	59.5	.40	14.9	N	S	67.0	8	67.0	8	S	95 S1C	85 OI	203	Q	2
Wisc. 271		58.5	27.2	0	93	7	72.7	1.49	16.1	Q	60.7	.40	15.8	N	S	68.2	8	68.2	11-1/2	S	90 S1C	85 OI	191	U	1

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.
2/ 14% moisture basis
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft, V - Very.
5/ Refer to Reference Mixograms for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.
9/ 1 - No Promise, 2 - Little Promise, 3 - Some Promise, 4 - Good Promise.

TABLE 20

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Williston, North Dakota

1968 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/	Gen. Eval. 9/
				Lg.	Med.	Sm.																			
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.		
Chris	13751	58.3	21.9	0	87	13	72.4	1.54	17.9	S	61.0	.46	17.0	N	S	69.3	6	69.3	4-1/4	S-M	95 C	90 O	180	S	
Justin	13462	58.0	25.2	2	92	6	72.8	1.56	17.5	S	58.7	.42	17.2	N	S	69.4	7	69.4	6-3/4	S	102 BC	90 O	184	S	
Manitou	13775	56.8	22.3	0	85	15	72.3	1.57	18.0	S	59.5	.46	17.7	N	S	66.6	5	66.6	4-1/2	S	100 C	92 O	196	Q	
Marquis	3461	57.8	23.9	1	86	13	72.4	1.56	16.9	S	58.4	.45	16.5	N	S-Q	66.8	6	66.8	4-3/4	S-M	98 S1C	92 O	188	Q	
Polk	13773	60.8	28.6	1	93	6	72.8	1.56	17.2	S	57.8	.45	17.0	N-S	Q	66.1	9	66.1	7-1/2	S	105 S1C	85 O	214	Q	
Red River 68		61.5	27.0	0	86	14	72.3	1.55	16.9	S	59.3	.47	16.7	N	S	69.8	11	69.8	21-1/4	B	98 S1C	88 I	195	U	
Thatcher	10003	57.5	25.4	0	80	20	72.0	1.64	17.6	S-Q	56.8	.47	17.4	N	Q	66.3	6	66.3	5	S	100 C	85 O	194	Q	
Waldron	13958	58.5	29.5	7	89	4	73.2	1.61	18.0	S	57.8	.43	17.8	N	S-Q	68.6	7	68.6	6	S	101 S1C	98	195	S	
RL 4200		58.3	36.2	0	92	8	72.6	1.55	17.6	S	58.3	.46	17.4	N	S	67.7	5	67.7	3-3/4	S	100 C	90 O	180	S-Q	2
RL 4220		57.0	25.9	1	83	16	72.2	1.54	16.8	S-Q	58.0	.47	16.4	N-S	S-Q	69.5	7	69.5	7-1/2	S	105 S1C	95	197	S	3
II-62-2		57.0	32.4	2	90	8	72.7	1.60	16.7	S-Q	58.7	.47	16.4	N-S	S-Q	68.0	7	68.0	7-1/2	S	100 C	92	197	Q	2
II-62-61		57.0	32.7	0	76	24	71.8	1.62	16.3	S-Q	61.2	.46	15.9	N	S	67.6	7	67.6	8-1/2	S	102 C	92	200	Q	2
II-62-68		59.0	25.8	0	88	12	72.4	1.59	16.8	S	62.0	.47	16.6	N	S	66.8	6	66.8	6-3/4	M-S	93 C	96 S1O	182	Q-S	3
K-48-44		57.0	31.9	1	89	10	72.6	1.56	17.4	S-Q	58.1	.49	17.1	N	Q	65.8	5	65.8	4	S	100 S1C	92 S1O	180	Q	2
ND 476		57.5	34.2	1	82	17	72.2	1.70	17.3	S-Q	57.7	.51	16.3	N	S-Q	67.4	6	67.4	6-1/4	S	98 C	92 S1O	189	Q	2
ND 481		57.0	33.5	2	89	9	72.7	1.56	17.0	S	59.3	.42	15.6	N	S	67.4	7	67.4	7-1/2	S	102 S1C	95 S1O	204	Q	2
ND 482		58.5	37.5	4	89	7	72.8	1.56	17.2	S	60.0	.41	17.0	N	S	68.3	7	68.3	7-3/4	S	105 S1C	95 S1O	179	Q	3
M 4-1		59.0	31.4	1	91	8	72.6	1.61	17.9	S	54.4	.47	17.1	S	U	67.2	7	67.2	6-1/4	S	100 S1C	95 S1O	168	Q	1
M 4-7		57.0	27.8	2	91	7	72.8	1.60	17.4	S-Q	60.5	.41	17.2	N	S	67.9	7	67.9	7-3/4	S	100 S1C	95 S1O	180	Q	2
MT 6610		57.0	27.1	1	86	13	72.4	1.59	16.8	S-Q	57.0	.44	16.6	S-N	Q-U	67.2	6	67.2	6	S	100 S1C	92 IO	190	Q	1
MT 6661		56.0	37.7	1	84	15	72.3	1.68	17.7	Q-S	56.9	.47	17.3	N-S	Q	68.5	7	68.5	8-1/2	S	103 C	90 O	194	Q	1
S 659		60.5	32.6	3	92	5	72.9	1.49	17.0	S	58.3	.39	16.8	N	S	68.5	6	68.5	4-1/4	S	98	85 OI	213	S-Q	3
S 6579		58.5	36.1	4	90	6	72.9	1.50	17.2	S	59.8	.39	17.0	N	S	66.6	7	66.6	6-1/2	S	100 C	85 OI	202	Q	2
Wisc. 271		59.5	26.6	0	75	25	71.8	1.58	16.9	S	59.5	.45	16.5	N	S	66.4	9	66.4	10-1/2	S	100 C	92 S1O	191	U	1

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.
2/ 14% moisture basis
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft, V - Very.
5/ Refer to Reference Mixograms for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.
9/ 1 - No Promise, 2 - Little Promise, 3 - Some Promise, 4 - Good Promise.

TABLE 21

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Highmore, South Dakota

1968 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/	Gen. Eval. 9/
				Lg.	Med.	Sm.																			
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.		
Chris	13751	61.0	24.2	4	91	5	73.0	1.60	16.7	S	57.0	.40	16.0	N	S	65.7	5	65.7	4-1/2	S	100	96 S10	188	S	
Justin	13462	58.5	25.6	4	91	5	73.0	1.81	17.1	S	58.2	.44	16.4	N	S	67.9	8	67.9	7-3/4	S	100 S1C	97 S10	183	S	
Manitou	13775	59.0	23.9	3	92	5	72.9	1.69	16.6	S	58.1	.46	15.7	N	S-Q	64.2	4	64.2	4	S	98 S1C	97 S10	187	Q-S	
Marquis	3461	57.5	20.8	2	83	15	72.4	1.80	16.1	Q	55.9	.46	15.3	N-S	Q	66.3	7	66.3	5-1/2	S	100 S1C	95	193	S	
Polk	13773	62.5	30.0	7	90	3	73.2	1.66	16.0	S	59.1	.42	15.3	N	S	66.3	8	66.3	7	S-M	105	98	195	S	
Red River 68		61.0	26.6	2	90	8	72.7	1.67	15.6	S	56.8	.48	15.1	N-S	Q	70.0	11	70.0	18	D	95	88 I	183	U	
Thatcher	10003	56.5	23.6	2	89	9	72.7	1.69	15.8	S-Q	57.5	.47	15.2	N	Q-S	65.7	6	65.7	5	S	105 S1C	97 S10	190	S	
Waldron	13958	59.5	27.7	11	87	2	73.5	1.76	16.7	S	57.2	.48	16.1	N	Q	67.9	8	67.9	8	S	102	98	205	S	
RL 4200		60.0	25.6	5	92	3	73.1	1.70	17.2	S	55.9	.46	15.9	S-N	Q	66.0	4	66.0	3-3/4	S-M	100 S1C	92	192	Q	2
RL 4220		58.0	25.4	5	88	7	72.9	1.70	15.5	S	55.4	.47	14.9	N-S	Q	66.3	6	66.3	6-1/4	S-M	98	93	186	S	3
II-62-2		58.5	27.3	5	91	4	73.1	1.68	16.1	S	57.9	.44	15.3	N	S	67.3	7	67.3	9-1/2	S	96 S1C	92 S10	202	Q-S	2
II-62-61		56.5	22.3	2	86	12	72.5	1.81	15.7	S-Q	58.7	.47	14.5	N	S-Q	65.0	8	65.0	9-1/4	S-M	100 C	95	190	Q-S	2
II-62-68		58.5	22.0	2	91	7	72.8	1.70	16.5	S	60.6	.44	15.6	N	S	65.7	8	65.7	10-1/2	S	102 C	95	183	Q	2
K-48-44		59.0	24.0	4	92	4	73.0	1.76	17.0	S	56.7	.48	15.9	N	Q	65.0	5	65.0	4	S-M	102	97	183	S-Q	2
ND 476		57.0	24.3	3	88	9	72.7	1.97	16.7	S	55.9	.53	15.5	N-S	U	66.3	8	66.3	8	S	95	96	176	Q	1
ND 481		57.0	27.8	4	91	5	73.0	1.80	16.2	S	57.0	.45	14.9	N	S	67.9	10	67.9	11-1/4	S	102 S1C	95 S10	195	Q	2
ND 482		60.0	26.9	8	89	3	73.3	1.74	16.4	S	57.0	.44	16.0	N-S	S-Q	67.9	9	67.9	12	S	100 S1C	93 S10	182	Q	2
M 4-1		60.0	26.2	3	93	4	73.0	1.92	16.7	S	58.2	.44	15.6	N	S	69.1	8	69.1	10-1/2	S	98 S1C	90 O	179	Q	2
M 4-7		59.0	28.5	5	92	3	73.1	1.86	16.8	S	58.4	.42	15.5	N	S	68.2	10	68.2	12-3/4	S	98 S1C	92 O	178	Q	2
MT 6610		57.5	24.8	2	89	9	72.7	1.78	16.2	S	54.5	.49	15.5	S	U	65.7	7	65.7	7-3/4	S	97	92	186	S	2
MT 6661		51.5	22.4	2	81	17	72.3	1.98	16.0	U	51.2	.56	15.3	S	U	66.3	7	66.3	6-1/2	S-M	100 C	96 C	191	S-Q	1
S 659		61.0	29.8	9	87	4	73.3	1.64	15.7	S	54.7	.46	15.5	S	Q-U	67.9	8	67.9	7-1/4	S	107	85 O	206	Q	2
S 6579		59.0	30.5	9	88	3	73.3	1.62	16.1	S	55.4	.45	15.5	N-S	Q	66.0	9	66.0	8-3/4	S	105 S1C	90 O	197	S-Q	2
Wisc. 271		58.5	23.1	1	89	10	72.6	1.67	16.7	S	55.4	.45	16.2	N-S	Q	67.9	9	67.9	9-1/4	S	98 S1C	88 O	203	Q	2

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.
2/ 14% moisture basis
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft, V - Very.
5/ Refer to Reference Mixograms for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.
9/ 1 - No Promise, 2 - Little Promise, 3 - Some Promise, 4 - Good Promise.

TABLE 22

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Watertown, South Dakota

1968 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/	Gen. Eval. 9/
				Lg.	Med.	Sm.																			
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.		
Chris	13751	60.5	23.5	4	90	6	72.9	1.59	17.1	S	58.9	.39	16.9	N	S	68.8	6	68.8	5-1/2	S	102 S1C	96 S10	191	S	
Justin	13462	58.0	25.2	3	92	5	72.9	1.67	17.2	S	56.7	.41	17.0	N	S	68.2	9	68.2	11-1/2	VS	102 S1C	96 S10	183	Q	
Manitou	13775	58.0	22.2	1	92	7	72.7	1.64	17.3	S	56.3	.44	16.8	N-S	Q	64.7	6	64.7	5	S	100 C	97	194	Q	
Marquis	3461	58.0	20.9	2	86	12	72.5	1.83	17.3	S-Q	54.2	.46	16.4	S-N	U	67.0	8	67.0	8	S	102 S1C	98	186	S	
Polk	13773	61.5	31.0	9	88	3	73.3	1.59	16.3	S	56.0	.42	16.0	N	S	65.3	8	65.3	8-1/4	S	105	98	213	Q	
Red River 68		61.5	30.2	5	91	4	73.1	1.53	16.1	S	56.1	.44	15.6	N-S	S-Q	69.7	11	69.7	21-1/2	B	95	95	172	U	
Thatcher	10003	56.0	20.9	2	84	14	72.2	1.77	16.6	S	56.3	.45	16.1	N-S	Q	66.3	7	66.3	6-1/2	S	100 C	97	195	S	
Waldron	13958	59.0	29.6	7	91	2	73.3	1.61	17.0	S	55.6	.43	16.8	S-N	Q	67.0	7	67.0	7-1/2	S	102	90 O	213	S	
RL 4200		58.5	25.1	3	92	5	72.9	1.65	17.4	S	56.7	.45	17.1	N	S	65.7	4	65.7	3-3/4	S	100 C	93	175	Q	2
RL 4220		58.5	27.3	5	90	5	73.0	1.58	16.0	S	56.7	.45	15.3	N	S-Q	67.0	6	67.0	7	S	98	93	185	S	3
II-62-2		59.5	30.7	13	84	3	73.3	1.67	16.7	S	58.8	.45	16.0	N	S-Q	67.9	7	67.9	8-1/4	S	102 S1C	92 S10	190	S	3
II-62-61		58.5	23.8	4	87	9	72.9	1.70	16.1	S	58.7	.47	15.4	N	Q	66.3	10	66.3	12-1/2	S-M	98	95	185	Q	2
II-62-68		59.0	21.3	2	89	9	72.7	1.76	17.0	S	60.5	.46	16.4	N	Q	67.0	10	67.0	18-3/4	S	95 DC	93 T	168	U	1
K-48-44		58.0	23.4	3	91	6	72.9	1.70	17.1	S	57.6	.42	16.6	N	S	64.7	5	64.7	4-1/4	S	98 S1C	96	183	Q	2
ND 476		58.0	24.8	3	88	9	72.7	1.84	17.1	S	57.1	.47	16.2	N	Q	67.0	8	67.0	9-1/4	S	96	97	180	S-Q	3
ND 481		58.0	30.9	9	87	4	73.3	1.58	16.1	S	58.3	.40	14.9	N	S	67.0	8	67.0	10-1/2	S	102 S1C	95 S10	207	S-Q	3
ND 482		59.5	29.2	11	86	3	73.4	1.67	17.2	S	56.9	.40	16.7	N	S	68.5	8	68.5	14-1/4	S	103 S1C	90 O	184	Q	2
M 4-1		59.5	26.9	3	92	5	72.9	1.81	17.1	S	58.2	.42	16.4	N	S	69.1	9	69.1	15-1/4	S	100 S1C	85 O	183	Q	2
M 4-7		58.5	29.5	5	92	3	73.1	1.86	17.5	S	59.3	.39	16.9	N	S	69.1	10	69.1	17	S	100 S1C	88 O	180	Q-U	1
MT 6610		57.5	24.9	3	89	8	72.8	1.67	16.4	S	54.9	.44	16.2	S	U	66.3	9	66.3	9-1/2	S	95	90 O	206	Q	1
MT 6661		55.0	22.6	1	86	13	72.4	1.86	16.2	Q	53.7	.50	15.6	S	U	67.0	8	67.0	9-1/4	S-M	105 C	95	183	S	1
S 659		61.0	29.0	11	86	3	73.4	1.68	16.6	S	54.9	.41	16.4	N-S	Q	69.4	8	69.4	7-3/4	S	105	85 O	213	S	3
S 6579		59.0	30.8	10	86	4	73.3	1.56	16.7	S	56.3	.41	16.4	N	S	67.3	7	67.3	8-1/2	S	105 S1C	95	202	S	3
Wisc. 271		59.0	24.8	2	89	9	72.7	1.54	16.2	S	56.7	.41	15.7	N	S	65.7	10	65.7	13-3/4	S	98 S1C	85 O	208	Q	2

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.
2/ 14% moisture basis
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft, V - Very.
5/ Refer to Reference Mixograms for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.
9/ 1 - No Promise, 2 - Little Promise, 3 - Some Promise, 4 - Good Promise.

TABLE 23

QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

Lind, Washington

1968 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/	Gen. Eval. 9/
				Lg.	Med.	Sm.																			
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.		
Chris	13751	58.0	25.1	1	94	5	72.8	1.50	15.5	S	54.8	.53	15.2	N	S	64.7	3	64.7	2-1/2	M	95 C	95 H	177	S	
Justin	13462	58.5	29.3	4	95	1	73.2	1.49	15.9	S	56.3	.47	15.2	N	S	65.0	4	65.0	3-1/4	M	97 S1C	93 H	171	S	
Manitou	13775	57.0	23.9	1	95	4	72.9	1.51	15.8	S	55.7	.56	15.4	N	S-Q	62.8	2	62.8	2-1/4	M-W	92 C	90 H	172	Q-S	
Marquis	3461	57.0	24.0	1	95	4	72.9	1.56	14.8	S	54.1	.57	14.2	N	Q	61.9	2	61.9	2-1/2	M-W	96 C	93 H	169	Q	
Polk	13773	59.5	31.5	7	92	1	73.3	1.53	15.2	S	55.0	.53	14.7	N	S	62.8	3	62.8	3	M	98 C	92 H	164	Q-S	
Red River 68		61.0	31.5	3	95	2	73.1	1.42	15.0	S	54.5	.52	14.5	N	S	65.7	6	65.7	5-1/4	VS	95 W	88 OH	186	Q	
Thatcher	10003	56.5	23.8	1	95	4	72.9	1.41	15.3	S-Q	54.8	.55	15.0	N	S	61.9	2	61.9	2-1/2	M-W	91 C	88 H	167	Q	
Waldron	13958	58.0	30.7	5	95	0	73.3	1.39	16.0	S	56.0	.52	15.3	N	S	63.5	3	63.5	3	M	90 DC	95 H	178	S	
RL 4200		55.0	23.4	1	95	4	72.9	1.42	16.6	Q-S	55.0	.54	16.4	N	S	61.9	2	61.9	2	M-W	94 VC	80 H	162	U	1
RL 4220		56.0	24.7	2	92	5	72.9	1.39	15.4	S-Q	55.1	.56	14.9	N	S-Q	63.2	2	63.2	2-1/4	W	88 DC	75 HT	162	U	1
II-62-2		58.0	30.4	29	70	1	74.4	1.44	15.1	S	56.0	.50	14.5	N	S	64.2	3	64.2	2-1/2	M-W	98 C	88 H	173	S-Q	3
II-62-61		59.5	29.4	7	91	2	73.3	1.36	13.7	S	57.6	.49	13.0	N	S	61.9	3	61.9	2-3/4	M-W	96 C	93 H	165	Q	2
II-62-68		59.5	26.2	3	95	2	73.1	1.40	15.0	S	57.1	.50	13.9	N	S	62.5	4	62.5	3-1/2	M-W	97 S1C	95 H	168	Q	2
K-48-44		55.0	23.0	2	96	2	73.0	1.47	16.8	Q-S	55.2	.55	16.3	N	S-Q	62.8	2	62.8	2	M-W	95 VC	80 H	158	U	1
ND 476		58.5	27.1	1	95	4	72.9	1.48	14.8	S	56.7	.54	13.9	N	S	62.3	3	62.3	3-1/4	W	97	90 H	161	Q	1
ND 481		57.5	32.6	9	89	2	73.4	1.47	15.0	S	58.3	.49	13.8	N	S	62.5	2	62.5	2-1/2	W	96 C	85 H	172	Q-U	2
ND 482		58.0	27.7	5	92	3	73.1	1.42	15.3	S	49.3	.50	14.4	N	S	61.3	3	61.3	3-1/2	M-W	98	93 H	157	Q-U	1
M 4-1		58.5	28.2	3	97	0	73.2	1.46	16.3	S	46.1	.52	15.2	N-S	U	61.3	3	61.3	3	M-W	97	93	164	Q	1
M 4-7		58.5	31.3	6	93	1	73.3	1.48	15.8	S	47.1	.49	14.7	S-N	U	61.0	4	61.0	3-3/4	M	94	90 S1I	160	U	1
MT 6610		58.5	29.4	5	93	2	73.2	1.37	15.3	S	44.7	.50	14.0	S	U	59.0	3	59.0	3	M-W	94	88	168	U	1
MT 6661		58.0	29.9	8	91	1	73.4	1.43	14.7	S	45.7	.52	13.5	S	U	60.0	3	60.0	3-1/4	M-W	97	95	172	U	1
S 659		59.0	30.5	7	91	2	73.3	1.36	14.4	S	44.3	.51	14.1	S	U	62.5	3	62.5	3-1/4	M-W	97	91	171	Q	1
S 6579		57.5	31.4	7	92	1	73.3	1.38	14.0	S	38.7	.55	13.0	VS	U	59.7	4	59.7	3-1/2	W S1D	95 S1C	88	161	U	1
Wisc. 271		58.5	28.1	3	93	4	73.0	1.44	14.3	S	45.2	.58	13.5	S	U	60.0	3	60.0	3-3/4	M-W	95 C	88 H	160	U	1

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.
2/ 14% moisture basis
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft, V - Very.
5/ Refer to Reference Mixograms for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.
9/ 1 - No Promise, 2 - Little Promise, 3 - Some Promise, 4 - Good Promise.

TABLE 24

AVERAGE OF QUALITY DATA ON UNIFORM REGIONAL NURSERY SAMPLES

1968 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size Lg.	Kernel Size Med.	Kernel Size Sm.	Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/	Gen. Eval. 9/
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.		
Chris	13751	59.8	26.9	13	82	5	73.4	1.64	16.0	S	57.2	.48	15.5	N	S	66.0	4	66.0	4-1/2	S	100	98	975	S	
Justin	13462	58.6	29.2	19	77	4	73.8	1.74	16.1	S	57.4	.48	15.6	N	S	66.9	6	66.9	6	S	99	97	940	S	
Manitou	13775	58.8	26.8	12	83	5	73.4	1.68	16.0	S	57.5	.49	15.3	N-S	S	64.1	4	64.1	4	S	102 SlC	96	945	Q	
Marquis	3641	58.9	27.7	9	83	8	73.1	1.78	15.2	S-Q	55.7	.50	14.5	N-S	Q	64.7	5	64.7	4-1/2	S	98 DG	96 SlO	980	S-Q	
Polk	13773	61.1	34.4	28	68	4	74.2	1.66	15.2	S	57.7	.46	14.6	N-S	Q-S	64.6	6	64.6	5-1/2	S	102	94 SlO	1015	S-Q	
Red River 68		61.0	31.3	9	86	5	73.4	1.63	15.1	S	57.4	.49	14.6	N-S	S-Q	67.3	9	67.3	12-1/2	B	98	88 I	875	U	
Thatcher	10003	57.8	25.1	4	87	9	72.8	1.70	15.2	Q-S	58.5	.52	14.8	N-S	S-Q	64.5	5	64.5	4-1/2	S	100 SlC	96	935	S-Q	
Waldron	13958	58.8	32.3	32	65	3	74.5	1.72	16.0	S	57.2	.47	15.3	N	S	66.0	6	66.0	5	VS	101	95 SlO	1035	S	
RL 4200		59.1	30.1	16	80	4	73.6	1.68	16.1	S	56.2	.48	15.5	N-S	S-Q	64.3	4	64.3	3-1/2	S-M	101 SlC	93	930	Q	2
RL 4220		58.6	29.6	16	78	6	73.5	1.64	15.0	S	57.4	.48	14.3	N-S	Q-S	65.5	5	65.5	5	S	103 W	96	955	S	3
II-62-2		59.0	33.2	29	67	4	74.3	1.65	15.1	S	58.1	.46	14.4	N-S	S	65.4	5	65.4	5-1/2	S	98 SlC	93	945	S	3
II-62-61		59.3	29.8	14	78	8	73.3	1.65	14.1	S	59.2	.47	13.3	N-S	S-Q	63.3	6	63.3	6	S	98	95 SlI	925	Q	2
II-62-68		60.0	27.9	9	85	6	73.2	1.68	15.2	S	60.7	.48	14.5	N	S	64.2	6	64.2	7	S	99 SlC	96	885	Q	1
K-48-44		58.7	29.7	17	79	4	73.7	1.69	15.8	S	56.9	.47	15.0	N	S-Q	63.8	4	63.8	4	S	102 SlC	94 SlO	970	Q	2
ND 476		58.4	30.8	15	77	8	73.4	1.78	15.3	S	56.2	.51	14.4	N-S	Q-S	64.8	6	64.9	6-1/2	S	98 SlC	94 SlI	910	S-Q	2
ND 481		57.6	34.1	24	71	5	74.0	1.70	15.1	S	57.6	.43	14.0	N-S	S	65.5	6	65.5	6-1/2	VS	101 SlC	92 SlOI	970	S	3
ND 482		59.2	32.0	32	64	4	74.4	1.72	15.8	S	57.0	.43	15.4	S-N	S-Q	66.8	6	66.8	6	VS	100	94 O	1040	S	2
M 4-1		59.4	30.2	16	79	5	73.6	1.78	16.0	S	55.8	.45	15.2	S-N	Q-S	66.8	7	66.8	6-1/2	S	101	88 O	950	S-Q	2
M 4-7		58.8	32.5	22	74	4	73.9	1.75	16.0	S	58.3	.43	15.3	N	S	66.4	7	66.4	8	VS	102 SlC	90 SlOI	995	Q	2
MT 6610		58.6	30.4	16	78	6	73.5	1.65	15.1	S	55.2	.46	14.6	S-N	Q-U	64.4	6	64.4	6	VS	103	96 SlI	1015	S-Q	2
MT 6661		56.2	30.0	9	83	8	73.1	1.78	15.2	Q	54.2	.51	14.5	S-N	Q-U	65.0	6	65.0	5-1/2	S	104 BC	96	1005	S	2
S 659		60.6	34.6	31	66	3	74.4	1.56	14.8	S	55.5	.43	14.6	S-N	Q	66.4	6	66.4	5-1/2	S	102	96 SlI	948	S	3
S 6579		59.4	35.5	30	66	4	74.3	1.57	15.1	S	56.6	.44	14.7	N-S	Q-S	65.0	6	65.0	6	VS	102	95 SlI	1000	S	2
Wisc. 271		58.7	29.9	11	80	9	73.1	1.65	15.3	S	58.0	.44	14.6	S-N	Q-S	64.7	8	64.7	7	S	102 SlC	95	1020	Q	2

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.
2/ 14% moisture basis
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft, V - Very.
5/ Refer to Reference Mixograms for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.
9/ 1 - No Promise, 2 - Little Promise, 3 - Some Promise, 4 - Good Promise.

TABLE 25

QUALITY DATA ON UNIFORM REGIONAL NURSERY STATE AVERAGES

1968 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mix. Abs. 2/	Mix. Pat. 3/	Bake Abs. 2/	Mix. Time	Dough Char. 4/	Crumb Color 5/	Crumb Grain 6/	Loaf Vol.
				Lg.	Med.	Sm.														
		#/Bu.	g.	%	%	%	%	%	%	%	%	%	%		%	min.				cc.
MINNESOTA STATIONS																				
Chris	13751	60.8	30.6	23	74	3	74.0	1.79	15.0	57.3	.50	14.5	64.5	4	64.5	3-1/2	S	99	90 O	202
Justin	13462	58.8	31.5	28	67	5	74.2	1.91	15.3	58.4	.50	14.6	65.7	6	65.7	5	S-M	101 S1C	94 O	193
MONTANA STATIONS																				
Chris	13751	57.8	23.2	4	87	9	72.8	1.61	16.2	61.6	.48	15.9	67.4	5	67.4	4	S-M	99 S1C	95 S1O	179
Justin	13462	57.3	26.3	5	88	7	72.9	1.71	16.6	60.9	.44	16.2	68.9	6	68.9	5-1/2	S	90 S1C	93 O	179
NORTH DAKOTA STATIONS																				
Chris	13751	60.2	27.7	18	77	5	73.7	1.59	16.4	54.5	.48	15.7	66.3	5	66.3	3-3/4	S-M	95 S1C	94 O	182
Justin	13462	59.5	30.7	29	68	3	74.3	1.68	16.2	54.6	.44	15.6	66.5	6	66.5	5-1/2	S	100 S1C	92 S1O	181
SOUTH DAKOTA STATIONS																				
Chris	13751	60.8	23.9	4	90	6	72.9	1.60	16.9	58.0	.40	16.5	67.3	6	67.3	5	S	101	96 S1O	190
Justin	13462	58.3	25.4	4	91	5	73.0	1.74	17.2	57.5	.43	16.7	68.1	9	68.1	9-1/2	VS	101 S1C	97 S1O	183
WASHINGTON STATION																				
Chris	13751	58.0	25.1	1	94	5	72.8	1.50	15.5	54.8	.53	15.2	64.7	3	64.7	2-1/2	M	95 C	95 H	177
Justin	13462	58.5	29.3	4	95	1	73.2	1.49	15.9	56.3	.47	15.2	65.0	4	65.0	3-1/4	M	97 S1C	93 H	171
STATE AVERAGES OF THE TWO VARIETIES																				
Minnesota		59.8	31.1	26	70	4	74.1	1.85	15.2	57.9	.50	14.6	65.1	5	65.1	4-1/4	S	100 S1C	92 O	188
Montana		57.6	24.8	5	87	8	72.9	1.66	16.4	61.3	.46	16.1	68.2	6	68.2	4-3/4	S	95 S1C	94 S1O	179
North Dakota		59.9	29.2	24	72	4	74.0	1.64	16.3	54.6	.46	15.7	66.4	6	66.4	4-1/2	S	98 S1C	93 S1O	182
South Dakota		59.6	24.7	4	91	6	73.0	1.67	17.1	57.8	.42	16.6	67.7	8	67.7	7-1/4	S	101 S1C	97 S1O	187
Washington		58.3	27.2	3	94	3	73.0	1.50	15.7	55.6	.50	15.2	64.9	4	64.9	2-3/4	M	96 S1C	94 H	174
1968 Averages 7/		59.0	27.4	12	83	5	73.4	1.66	16.1	57.4	.47	15.6	66.5	6	66.5	4-3/4	S	98 S1C	94 S1O	182
1967 Averages 7/		60.0	27.8	19	76	5	73.7	1.71	15.5	58.4	.47	14.7	64.7	5	64.7	4-3/4	M-S	106	89	182

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.
2/ 14% moisture basis
3/ Refer to Reference Mixograms for numerical curve pattern.
4/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
5/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
6/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.
7/ Averages obtained by using data for Minnesota, Montana, North Dakota, and South Dakota.

TABLE 26

QUALITY DATA ON SAWFLY YIELD NURSERY SAMPLES

Dutton, Montana

1968 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/	Gen. Eval. 9/
				Lg.	Med.	Sm.																			
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.		
Chinook	13220	58.0	32.7	44	52	4	75.0	1.64	10.4	S	58.5	.44	9.7	N-S	S	58.7	3	58.7	4	W-M	103 S1C	85 C	151	S	
Fortuna	13596	57.5	38.8	53	43	4	75.5	1.61	9.7	S	59.2	.44	8.8	N-S	S	55.1	5	55.1	4	W-M	105 C	86 C	148	S	
Rescue	12435	57.0	31.2	22	71	7	73.8	1.54	9.8	S	58.2	.43	8.9	N-S	S	55.7	4	55.7	4-1/2	W-M	106 S1C	80 C	160	S-Q	
Thatcher	10003	57.0	27.8	23	72	5	73.9	1.53	10.1	S	57.9	.49	9.2	N-S	S-Q	55.1	9	55.1	5-1/2	D	104 S1C	82 C	145	Q	
CN 164134		58.0	28.4	15	80	5	73.5	1.57	10.3	S-Q	61.0	.42	9.6	N-S	S	55.1	6	55.1	5	W-M	103 S1C	81 C	148	S	3
CN 169293		57.5	32.7	39	58	3	74.8	1.65	10.0	S	55.4	.45	9.2	S-N	Q	56.0	3	56.0	5	D	103 S1C	80 C	140	Q	2
CN 530411		58.0	33.0	55	41	4	75.6	1.55	10.1	S	59.3	.45	9.3	N-S	S	57.5	3	57.5	4-1/4	M-W	108 S1C	80 C	146	S	3
CN 530445		57.0	34.1	51	44	5	75.3	1.55	9.7	S	59.6	.42	9.0	N-S	S	56.7	4	56.7	4-1/4	W-M	104 S1C	80 C	143	S-Q	2
MT 6661		57.0	36.0	57	39	4	75.7	1.57	9.4	S	57.5	.44	8.2	N-S	S	55.1	6	55.1	4-3/4	D	104 C	75 C	136	Q	2
MT 6669		58.0	32.6	52	44	4	75.4	1.58	9.0	S	56.3	.44	7.7	N-S	S-Q	55.4	3	55.4	3-1/2	S1D	103 S1C	80 C	137	Q	2
MT 6679		58.0	35.7	57	39	4	75.7	1.56	10.2	S	59.3	.43	9.1	N-S	S	58.1	3	58.1	3-1/2	M-W	103 S1C	78 C	147	Q	2
ND 659		57.5	34.8	55	42	3	75.6	1.58	9.1	S	56.8	.46	8.5	N-S	S	58.7	6	58.7	5-1/4	D	104 S1C	81 C	145	Q	2
ND 6556		57.0	37.7	62	34	4	75.9	1.58	9.0	S	57.0	.43	8.3	N-S	S	55.4	6	55.4	5-3/4	S1D	108 S1C	85 C	135	S-Q	2
ND 6572		57.0	37.6	67	31	2	76.3	1.51	9.6	S	55.6	.48	8.9	S-N	S-Q	56.7	6	56.7	4-3/4	S1D	105	85 C	145	S-Q	3
ND 6579		58.0	37.5	68	29	3	76.3	1.50	9.5	S	55.9	.43	8.8	S-N	S-Q	56.3	6	56.3	6	S1D	103 C	85 C	138	Q	2
ND 66124		58.0	38.8	65	32	3	76.1	1.57	9.3	S	58.9	.43	8.3	N-S	S	56.0	4	56.0	4-3/4	M-W	103 S1C	83 C	153	S	3

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.
2/ 14% moisture basis
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft, V - Very.
5/ Refer to Reference Mixograms for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.
9/ 1 - No Promise, 2 - Little Promise, 3 - Some Promise, 4 - Good Promise.

TABLE 27

QUALITY DATA ON SAWFLY YIELD NURSERY SAMPLES

Sidney, Montana

1968 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size Lg.	Kernel Size Med.	Kernel Size Sm.	Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/	Gen. Eval. 9/
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.		
Chinook	13220	57.0	24.1	2	92	6	72.8	1.50	17.5	S	57.1	.46	16.6	N-S	S	66.3	6	66.3	5	S	100	92 O	220	S	
Fortuna	13596	56.5	26.9	2	94	4	72.9	1.49	15.9	S	59.0	.44	15.3	N-S	S	65.7	7	65.7	5-1/2	S	97 DG	88 O	203	S	
Rescue	12435	56.5	24.2	2	93	5	72.9	1.50	16.5	S	59.4	.39	16.1	N-S	S	66.0	7	66.0	5-3/4	S	95 DG	78 OI	222	Q-S	
Thatcher	10003	55.5	22.2	1	92	7	72.7	1.58	17.7	S-Q	58.1	.44	17.1	N-S	S	67.0	5	67.0	3-3/4	S	102 SlC	85 O	198	Q-S	
CN 164134		58.0	23.1	0	93	7	72.7	1.57	17.9	S	59.2	.43	17.2	N-S	S	67.0	5	67.0	4	S	104 SlC	83 O	201	S-Q	3
CN 169293		56.5	24.4	1	93	6	72.8	1.63	17.9	S	57.6	.38	17.5	N-S	S	68.8	7	68.8	5-3/4	S	100 SlC	83 O	208	S	3
CN 530411		57.0	25.6	3	92	5	72.9	1.56	17.7	S	59.2	.42	16.7	N-S	S	66.3	6	66.3	4	S	102 SlC	85 O	200	S-Q	3
CN 530445		56.5	27.2	5	91	4	73.1	1.48	16.9	S	58.3	.41	16.0	N-S	S	64.4	4	64.4	3-1/2	S-M	106 C	84 OI	185	Q	2
MT 6661		53.0	24.5	2	94	4	72.9	1.54	17.6	Q	55.0	.44	16.8	N-S	Q	66.3	6	66.3	5-1/4	S	102 C	78 O	220	S-Q	2
MT 6669		55.0	20.9	1	90	9	72.6	1.61	17.1	Q	58.5	.40	15.9	N-S	S	67.0	8	67.0	7-1/4	S	102	85 O	195	Q	2
MT 6679		57.0	25.6	2	94	4	72.9	1.59	17.1	S	59.6	.39	16.0	N-S	S	65.0	7	65.0	5-1/2	S	98	85 O	210	Q	3
ND 659		57.5	28.7	6	91	3	73.2	1.46	16.9	S	56.7	.38	16.7	N-S	Q-S	67.9	6	67.9	4-1/4	S	104 BW	80 O	218	S-Q	3
ND 6556		56.0	29.1	3	94	3	73.0	1.44	16.9	S	59.9	.37	16.3	N-S	S	67.0	7	67.0	5-1/2	S	100 SlC	78 O	219	S-Q	3
ND 6572		56.0	28.1	2	94	4	72.9	1.54	17.7	S	57.3	.45	17.0	N-S	S	66.6	5	66.6	4-3/4	S	101 SlC	80 O	216	S	3
ND 6579		55.5	29.2	3	93	4	73.0	1.53	17.5	S	59.0	.39	17.1	N-S	S	66.3	7	66.3	5-3/4	S	101 SlC	81 O	221	S	3
ND 66124		56.5	25.7	2	94	4	72.9	1.57	17.2	S	58.1	.42	16.5	N-S	S	66.3	8	66.3	7	S	100	85 O	207	Q	2

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.
2/ 14% moisture basis
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft, V - Very.
5/ Refer to Reference Mixograms for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.
9/ 1 - No Promise, 2 - Little Promise, 3 - Some Promise, 4 - Good Promise.

TABLE 28

QUALITY DATA ON SAWFLY YIELD NURSERY SAMPLES

Williston, North Dakota

1968 CROP

Variety or Sel. No.	C.I.	T.W. 1/	1000 Kwt.	Kernel Size Lg.	Kernel Size Med.	Kernel Size Sm.	Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/	Gen. Eval. 9/
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.		
Chinook	13220	60.0	22.7	0	88	12	72.4	1.58	17.6	S	57.2	.41	17.2	N-S	S	66.6	6	66.6	5-1/2	S	98 S1C	90 O	181	S	
Fortuna	13596	59.0	24.4	1	86	13	72.4	1.59	16.7	S	58.3	.43	16.0	N	S	66.3	7	66.3	7	S	100 S1C	96 S1O	209	S	
Rescue	12435	58.0	18.5	0	64	36	71.2	1.81	17.7	S-Q	57.1	.44	17.4	N	S	67.6	8	67.6	9-1/2	S	102 S1C	78 OI	212	S-Q	
Thatcher	10003	56.5	18.5	0	71	29	71.6	1.75	18.0	Q	58.3	.47	17.5	N	S	66.6	6	66.6	4-3/4	S	102 C	83 O	200	S-Q	
CN 164134		58.5	19.9	0	76	24	71.8	1.63	18.0	S-Q	60.7	.41	17.7	N	S	69.7	7	69.7	7	S	104 S1C	80 OI	201	S-Q	3
CN 169293		57.5	20.9	0	71	29	71.6	1.66	18.0	Q	56.9	.41	17.8	N-S	S-Q	70.9	9	70.9	9	VS	102 S1C	78 OI	205	Q	2
CN 530411		59.5	23.0	1	90	9	72.6	1.64	17.9	S	60.2	.41	17.3	N	S	67.3	7	67.3	6-3/4	S	101 C	85 O	187	S	3
CN 530445		61.0	22.6	1	91	8	72.7	1.53	17.0	S	60.2	.41	16.4	N	S	66.3	7	66.3	6	S	104 S1C	90	180	S	4
MT 6661		55.0	21.3	0	76	24	71.8	1.70	18.1	Q	55.6	.49	17.7	N-S	Q-U	69.1	8	69.1	8-3/4	S	100 C	88 T	188	Q	1
MT 6669		56.0	19.2	1	68	31	71.5	1.69	17.0	Q	56.5	.45	16.4	N-S	Q	67.6	9	67.6	9-1/4	S	98 C	85 S1O	190	Q	2
MT 6679		57.0	21.4	1	84	15	71.8	1.60	17.1	S-Q	55.1	.45	16.6	N-S	Q	66.0	8	66.0	6-1/2	S	102	85 S1O	197	S	3
ND 659		60.0	25.3	1	91	8	72.7	1.48	17.4	S	55.6	.41	17.3	N-S	Q	68.2	7	68.2	5-1/4	VS	105 W	80 O	210	S	3
ND 6556		57.5	25.4	1	91	8	72.7	1.53	17.3	S-Q	59.7	.40	17.1	N	S	67.9	8	67.9	7-1/2	S	102 S1C	90 O	202	S	3
ND 6572		59.0	25.9	2	90	8	72.7	1.52	17.5	S	57.4	.46	17.3	N-S	Q	66.6	6	66.6	5-1/4	VS	104	90 O	211	S	3
ND 6579		57.0	24.3	1	87	12	72.0	1.61	18.0	Q	57.9	.42	17.7	N-S	S	67.0	8	67.0	7-1/2	VS	105 S1C	90 O	208	S	3
ND 66124		58.5	23.6	1	88	11	72.5	1.57	17.0	S	58.1	.45	16.6	N-S	S	66.6	9	66.6	8	S	101 S1C	90 O	203	S-Q	2

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.
2/ 14% moisture basis
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft, V - Very.
5/ Refer to Reference Mixograms for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.
9/ 1 - No Promise, 2 - Little Promise, 3 - Some Promise, 4 - Good Promise.

TABLE 29

QUALITY DATA ON SAWFLY YIELD NURSERY SAMPLES

Williston, North Dakota

1968 CROP

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/	Gen. Eval. 9/
				Lg.	Med.	Sm.																			
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.		
Chris	13751	58.0	19.5	0	80	20	72.0	1.67	17.8	S	58.6	.44	17.4	N	S	67.6	6	67.6	4-1/2	S	101 SlC	85 O	190	S	
Fortuna	13596	60.0	25.2	1	88	11	72.5	1.60	16.8	S	59.1	.45	16.2	N	S	66.0	7	66.0	5-3/4	S-M	98 SlC	93	206	S	
Justin	13462	57.5	23.1	1	90	9	72.6	1.70	17.8	S-Q	58.3	.47	17.2	N	S-Q	67.9	7	67.9	6	S	96 SlC	90	177	Q-S	
S 663		58.0	21.9	1	87	12	72.5	1.71	17.6	S	56.9	.48	17.1	N-S	Q	64.7	5	64.7	3-3/4	M-S	100 SlC	91	175	Q	1
S 666		59.0	21.5	0	86	14	72.3	1.71	18.7	S	54.2	.53	18.1	S-N	U	68.2	8	68.2	5-3/4	S	98 SlC	80 OI	197	S-Q	1
S 6531		58.5	23.8	1	90	9	72.6	1.63	17.8	S	60.5	.42	17.6	N	S	66.6	7	66.6	7-3/4	S	103 SlC	88 OI	200	Q	2
S 6534		60.0	24.4	1	93	6	72.8	1.54	17.1	S	56.0	.46	16.5	N-S	Q	65.0	7	65.0	5-1/4	S	102 SlC	94	202	Q	2
S 6625		60.0	27.6	2	94	4	72.9	1.53	16.5	S	58.1	.41	16.3	N-S	S	64.2	7	64.2	6	S-M	105 W	85 IO	204	Q	3
S 6662		58.0	24.5	1	92	7	72.7	1.62	18.2	S	58.5	.46	17.8	N	S	66.0	6	66.0	5	S	102 SlC	88 O	204	S	4
S 6673		59.5	23.7	1	72	27	71.7	1.48	17.2	S	56.3	.45	17.6	N	Q	66.6	7	66.6	5-3/4	S	102	85 SlOI	207	S	3
S 6677		60.0	25.8	1	91	8	72.7	1.54	17.4	S	58.6	.44	17.4	N	S	66.3	6	66.3	4	M-S	104	85 SlOI	184	S-Q	3
S 6679		61.5	26.5	2	95	3	73.0	1.56	17.3	S	57.2	.56	16.9	N-S	U-Q	67.0	5	67.0	4	S-M	104	90	187	S	1
S 6681		59.0	24.3	1	92	7	72.7	1.63	17.7	S	58.3	.43	17.9	N	S	67.0	7	67.0	5-1/2	S	103	90 O	207	S	4
S 6686		60.0	27.0	1	94	5	72.8	1.56	17.0	S	56.9	.46	16.8	N-S	Q	67.0	7	67.0	5-1/4	S	102	88 OI	213	S	3
S 6689		59.5	28.4	2	91	7	72.8	1.43	16.2	S	58.8	.41	16.3	N	S	67.9	6	67.9	4-3/4	S	102	90 OI	204	S	4
S 6694		60.0	25.6	2	92	6	72.8	1.60	17.4	S	58.1	.44	17.2	N	S	66.3	8	66.3	7-1/4	S-M	98	85 O	226	Q	2
S 66118		59.0	28.6	3	93	4	73.0	1.54	17.0	S	55.6	.41	17.4	S-N	Q	67.0	6	67.0	5-1/2	S	105	86 OI	203	S	2
S 66137		58.5	25.8	1	92	7	72.7	1.54	17.3	S	55.8	.41	17.2	S-N	Q	66.3	6	66.3	4-3/4	S-M	105	87 O	189	S	2

1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.
2/ 14% moisture basis
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft, V - Very.
5/ Refer to Reference Mixograms for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.
9/ 1 - No Promise, 2 - Little Promise, 3 - Some Promise, 4 - Good Promise.

TABLE 30

AVERAGE OF QUALITY DATA ON SAWFLY YIELD NURSERY SAMPLES

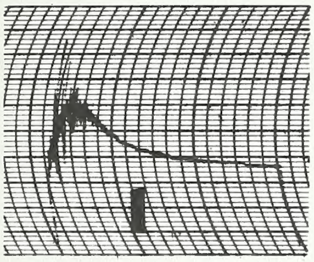
1968 CROP

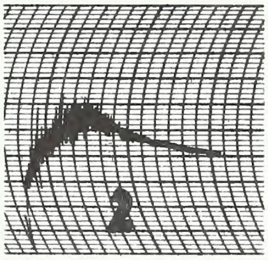
Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Size			Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext.	Min.@ 65%Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 2/	Mix. Pat. 5/	Bake Abs. 2/	Mix. Time	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol.	Bake Eval. 3/	Gen. Eval. 9/
				Lg.	Med.	Sm.																			
		#/Bu.	g.	%	%	%	%	%	%		%	%	%			%		%	min.				cc.		
Chinook	13220	58.3	26.5	15	78	7	73.4	1.57	15.2	S	57.6	.44	14.5	N-S	S	63.9	5	63.9	4-3/4	S-M	100 S1C	89 O	184	S	
Fortuna	13596	57.7	30.0	19	74	7	73.6	1.56	14.1	S	58.8	.44	13.4	N-S	S	62.4	6	62.4	5-1/2	S-M	101 C	90 S1O	187	S	
Rescue	12435	57.2	24.6	8	76	16	72.6	1.62	14.7	S-Q	58.2	.42	14.1	N-S	S	63.1	6	63.1	6-1/2	S-M	101 S1C	79 OI	198	S-Q	
Thatcher	10003	56.3	22.8	8	78	14	72.7	1.62	15.3	Q-S	58.1	.47	14.6	N-S	S-Q	62.9	7	62.9	4-3/4	M-S	103 S1C	83 O	181	Q-S	
CN 164134		58.2	23.8	5	83	12	72.7	1.59	15.4	S-Q	60.3	.42	14.8	N-S	S	63.9	6	63.9	5-1/4	S-M	104 S1C	81 O	183	S-Q	3
CN 169293		57.2	26.0	13	74	13	73.0	1.65	15.3	S-Q	56.6	.41	14.8	S-N	Q	65.2	6	65.2	6-1/2	VS-M	102 S1C	80 O	184	Q-S	2
CN 530411		58.2	27.2	20	74	6	73.7	1.58	15.2	S	59.6	.43	14.4	N-S	S	63.7	5	63.7	5	S-M	104 S1C	83 O	178	S	3
CN 530445		58.2	28.0	19	75	6	73.7	1.52	14.5	S	59.4	.41	13.8	N-S	S	62.5	5	62.5	4-1/2	M-S	105 S1C	85 S1O	169	Q-S	2
MT 6661		55.0	27.3	12	77	11	73.1	1.60	15.0	Q-S	56.0	.46	14.2	N-S	Q	63.5	7	63.5	6-1/4	S-M	102 C	80 S1O	181	Q	2
MT 6669		56.3	24.2	18	67	15	73.2	1.63	14.4	Q-S	57.1	.43	13.3	N-S	S-Q	63.3	7	63.3	6-3/4	S-M	101 S1C	83 S1O	174	Q	2
MT 6679		57.3	27.6	20	72	8	73.6	1.58	14.8	S	58.0	.42	13.9	N-S	S	63.0	6	63.0	5-1/4	S-M	101	83 S1O	185	Q-S	3
ND 659		58.3	29.6	21	74	5	73.8	1.51	14.5	S	56.4	.42	14.2	N-S	Q-S	64.9	6	64.9	5	VS-M	104 W	80 O	191	S-Q	3
ND 6556		56.8	30.7	22	73	5	73.9	1.52	14.4	S	58.9	.40	13.9	N-S	S	63.4	7	63.4	6-1/4	S	103 S1C	84 O	185	S-Q	3
ND 6572		57.3	30.5	24	71	5	74.0	1.52	14.9	S	56.8	.46	14.4	N-S	Q-S	63.3	6	63.3	5	VS-M	103	85 O	191	S	3
ND 6579		56.8	30.3	24	70	6	73.9	1.55	15.0	S	57.6	.41	14.5	N-S	S	63.2	7	63.2	6-1/2	VS-M	103 S1C	85 O	189	S-Q	3
ND 66124		57.7	29.4	29	65	6	74.2	1.57	14.5	S	58.4	.43	13.8	N-S	S	63.0	7	63.0	6-1/2	VS-M	101 S1C	86 O	188	Q-S	2

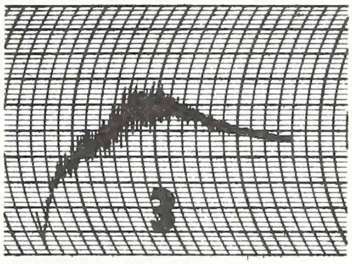
1/ Clean dry - subtract 1#/Bu. for dockage-free T.W.
2/ 14% moisture basis
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft, V - Very.
5/ Refer to Reference Mixograms for numerical curve pattern.
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, Sl - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close, H - Harsh.
9/ 1 - No Promise, 2 - Little Promise, 3 - Some Promise, 4 - Good Promise.

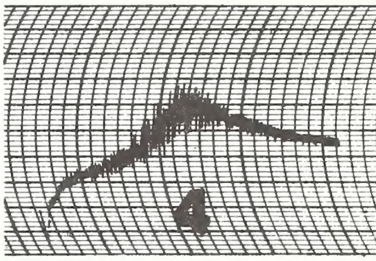
REFERENCE MIXOGRAMS

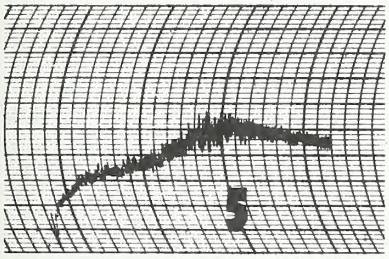
HARD RED SPRING WHEAT

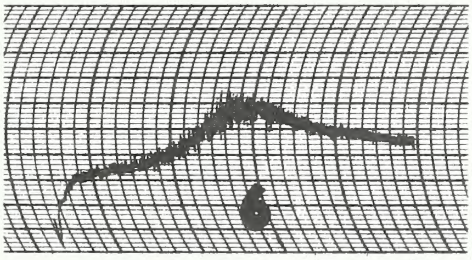


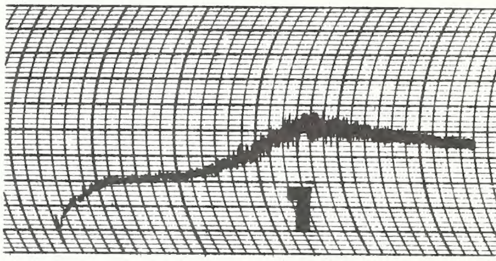


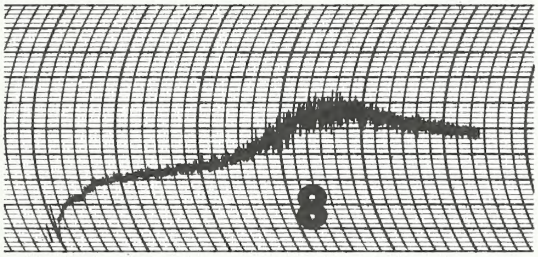


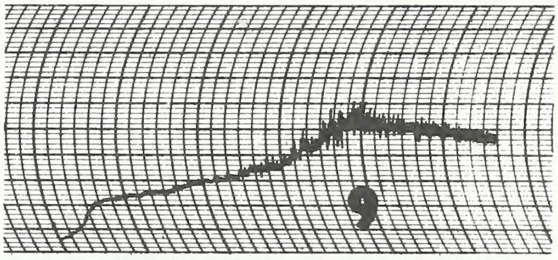


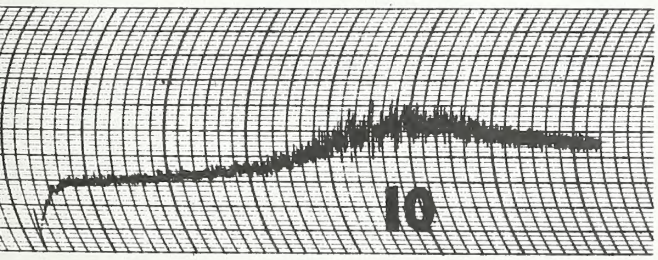


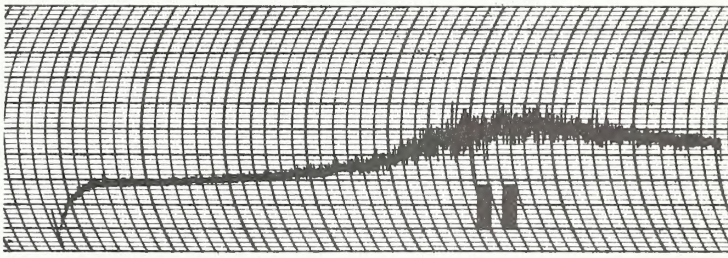












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